October 30, 1961

PULP & PAPER

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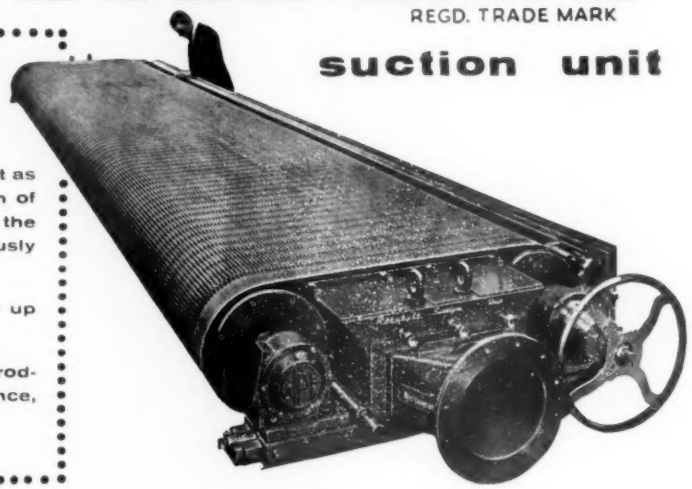

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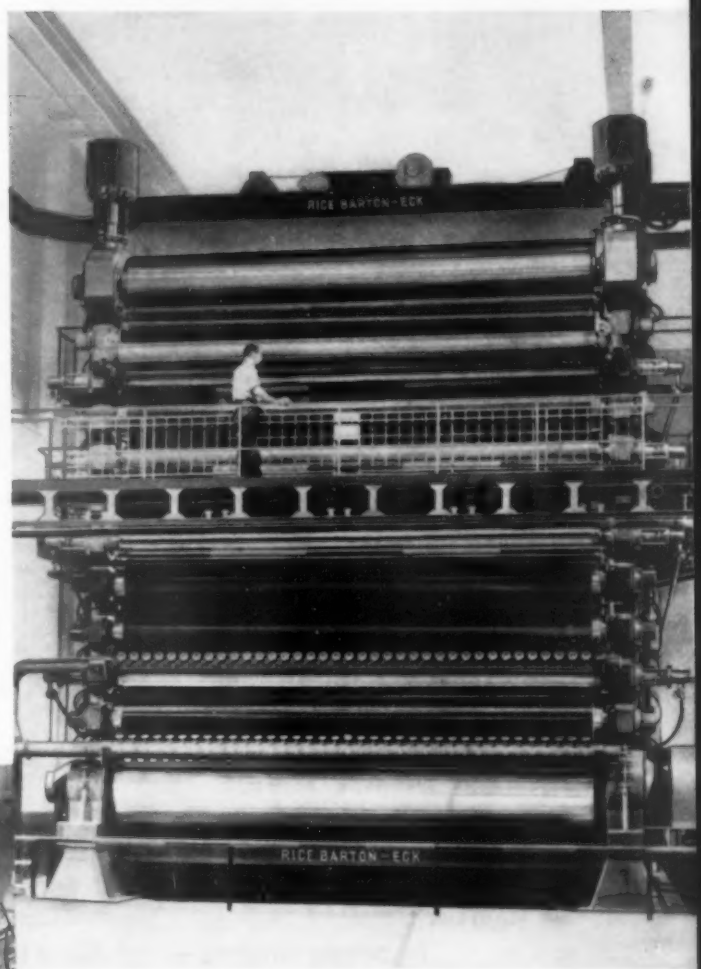

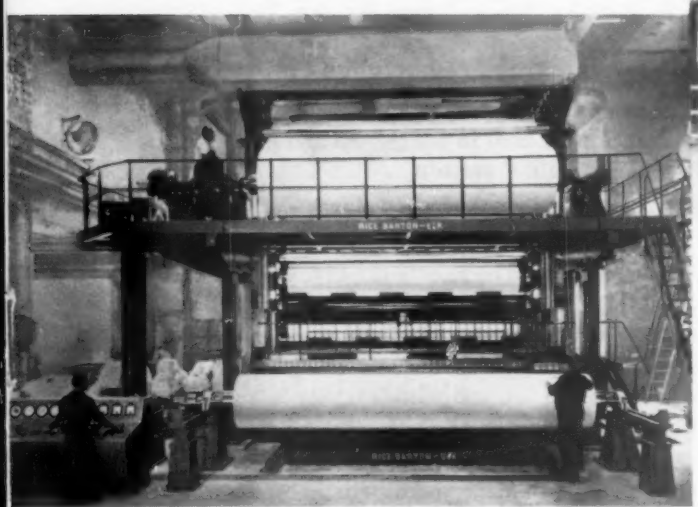

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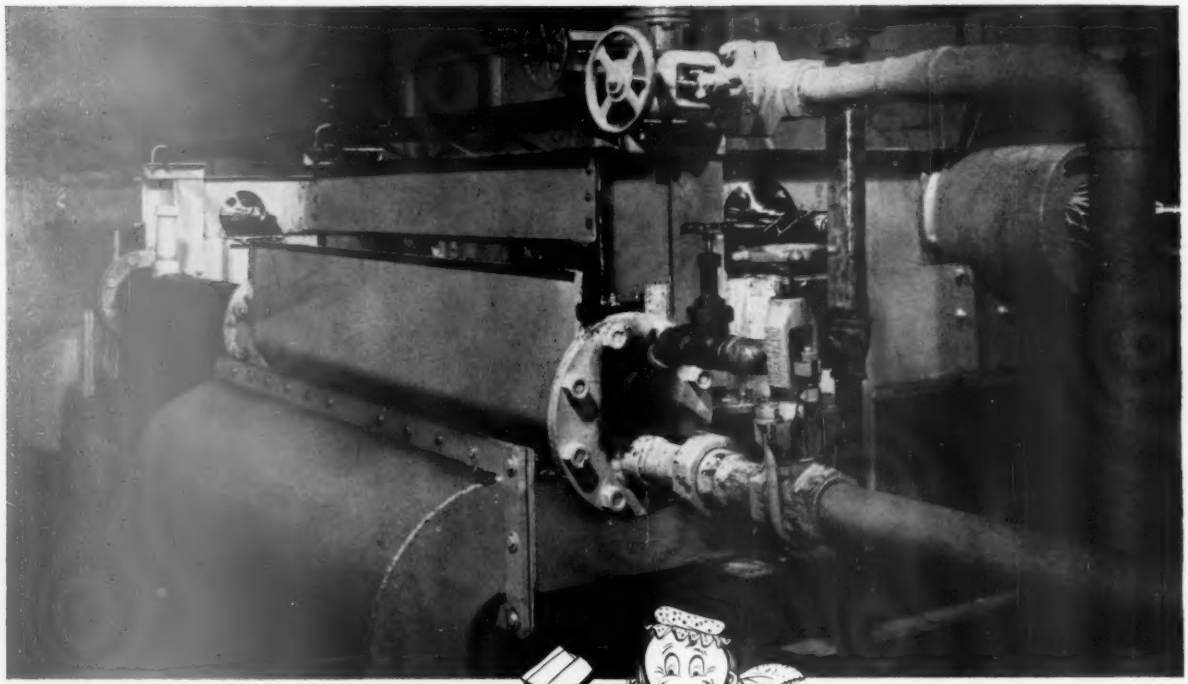

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October 30, 1961 PUBLISHED EVERY OTHER WEEK VOLUME 35, NUMBER 22 PULP & PAPER

PULSE OF THE INDUSTRY

COVER PICTURE: Slice is adjusted on pilot machine, which produces uniform base stock at high speeds at Time's Springdale labs.

FEATURES

DEPARTMENTS

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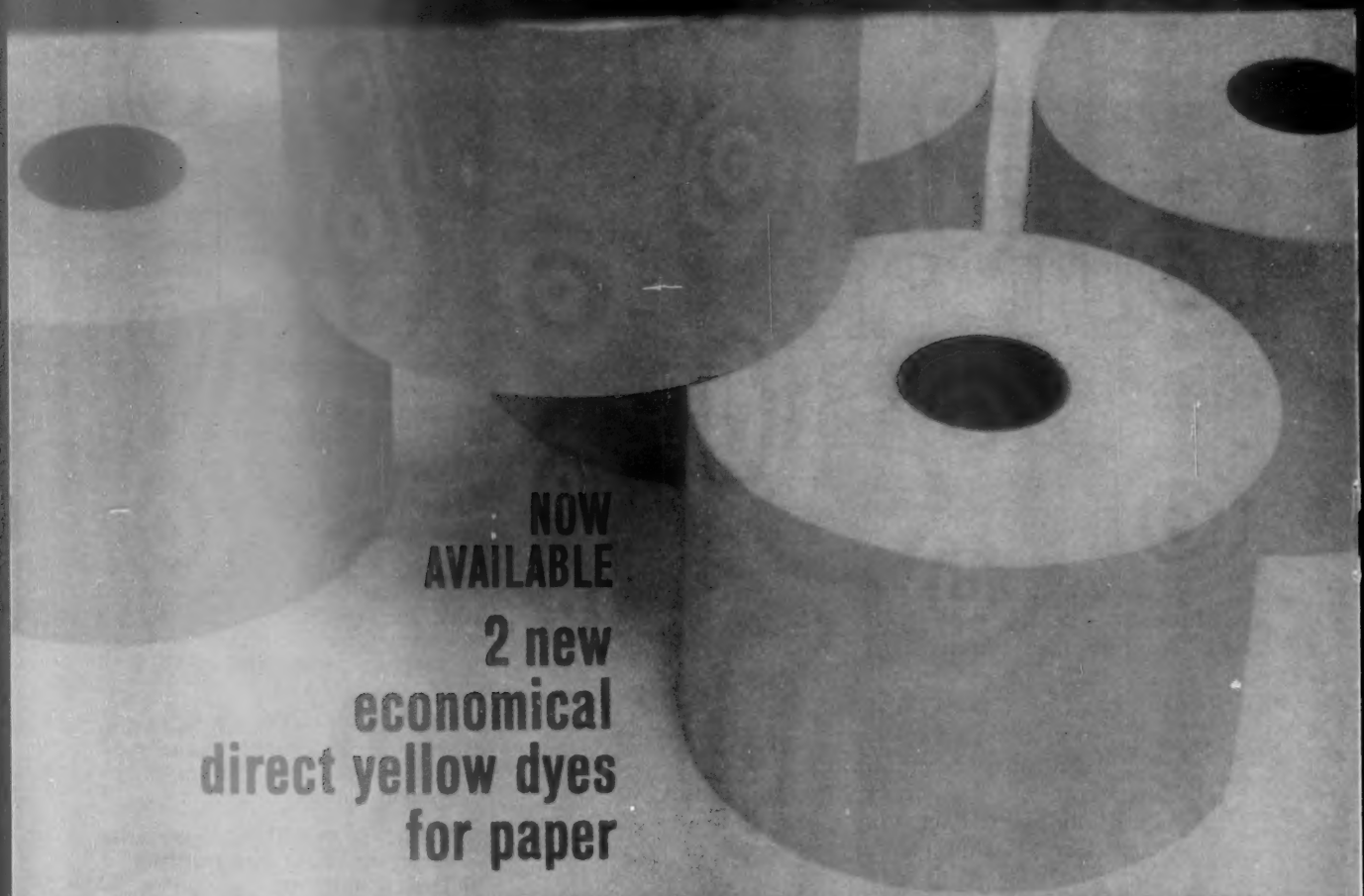

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NEWS DIGEST...

Fallout from Russian nuclear bombs poses critical problems for some specialty pulp manufacturers and producers of photographic papers. There has been no publicity of this in the press, but the increased radiation has been recorded in the northern tier of states, from west to east, as well as in Canada. Normally, the actual damage to pulp or film is not revealed until the customer uses the film, and preventive action usually is just to quit making the product when polluted water is found. Furthermore, radiation particles may come down in winter snows, reach mill waters in spring!

Scott Paper reports record sales and is again splitting its stock three for one. Net income for St. Regis for first nine months was $13,093,066 compared with $16,889,615 for the same period last year. Price reductions during first half of year continued to affect profits unfavorably says St. Regis.

Paper and paperboard production rates hover around 89% of capacity, report APPA and NPA. Paper rate was 93% for week ending Oct. 14; paperboard was 98%. See "Production," page 17.

A hard-headed look at pollution was given to industry's sanitary engineers at TAPPI Engineering Conference by Albert W. Wilson, Editor, PULP & PAPER. Outlook is for greater intervention by federal government and states. See "Pollution Control," page 9. Engineers meet in Montreal, 1962; Cincinnati, 1963; Seattle, 1964; St. Louis, 1965.

Wisconsin paper employment tops 40,000 mark, but an industry spokesman warns of "harsh" competition ahead. Long strike at Ketchikan Pulp is over after 12 weeks. Workers reportedly gained a "small increase."

Howe Sound Pulp plans 50% expansion of its pulp capacity, bringing it from 400 tpd ultimately to 600 tpd. Continuous cooking is being added. Peninsular Paper eyes a new paper machine to boost its present 40-tpd capacity. Southwest Forest borrows $5 million to expand into converting operations. See "Industry Growth," page 19.

Several outstanding leaders have died in recent weeks: James C. Kimberly, 90, son of a Kimberly-Clark Corp. founder and father of present Chairman John R. Kimberly (James C. was a former president of Neenah Paper Co.); George W. Mead, former president of Consolidated W. P. & P. Co. (see Last Word, page 58); Capt. Herbert A. Kidd, V.P. and gen. mgr., Georgia and Rome Kraft Cos.; Theodore W. Dunn, chairman and treasurer of Dunn Paper Co., and Theodore M. Gilbert, president of Gilbert Paper Co. (see page 52).

California's newest mill started up Oct. 19 at Ripon, Calif. Regular production of Vicksburg fine paper grades at this Simpson-Lee Paper Co. mill got under way a week later, at a restricted rate of 50 tpd (ultimately 100 tons). Max Bardeen, president, was on hand to see first paper over the 136 in. Beloit Fourdrinier. David Reed is mill mgr.

...16th TAPPI ENGINEERING CONFERENCE

Market-oriented engineers needed

Cancell opens parley with exhortation to emphasize 'end-use'

By VINCENT W. DE SALVO, Managing Editor

WASHINGTON, D.C.—Pulp and paper engineers have been admonished to become "market-oriented" if they are to continue to be valuable to their companies in the present period of growing domestic and foreign competition and dwindling profits.

The warning was delivered by Benton R. Cancell, executive vice president of St. Regis Paper Co., to hundreds of engineers who gathered here a fortnight ago for the 16th TAPPI Engineering Conference.

Theme of the four-day-long meeting was "Economic Solutions Through Engineering," a subject that is becoming of increasing concern to the industry as it struggles to improve

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profits after a slump year.

The topic was chosen a year ago for the reason that "it is . . . important to the companies for which we work, important to the industry as a whole, and important to the security and growth of our country and our way of life," according to M. J. Osborne, chief engineer at Bowaters Southern Paper Corp., Calhoun, Tenn., general conference chairman.

In an opening address, Mr. Cancell struck the keynote of the theme. "Admittedly the last year has seen major and significant engineering and technical advances," he asserted, "but in all too many instances, these advances have had but little relation to a well conceived marketing philosophy—and being so unrelated, have often failed to achieve the economic and profit goals for which each company strives."

The St. Regis executive, who has held positions in nearly every phase of the industry, stressed the necessity of closing "the wide gap" that still separates engineering and marketing in order to develop the kinds of products demanded by the consumer as pulp and paper companies attempt to block the inroads of synthetics.

But the rivalry of plastics and other non-paper products was not the only challenge cited by Mr. Cancell. He noted that, with the establishment of foreign trading blocks, such as the European Common Market, American companies are losing part of their export trade, which they can recoup only by more astute selling. In the past seven years, he noted, exports of American goods have been increased 8 per cent, while world trade has shot up 40 per cent. Conversely, during the same period, American imports of finished manufactured goods has skyrocketed 250 per cent.

Mr. Cancell, who is also president of the Rhinelander Division of St. Regis, pointed out that, while exports of pulp and paper have been higher than exports generally, the increase has been insufficient to balance the overcapacity from which the industry chronically suffers.

Exacerbating the predicament is fiercer competition among domestic companies for the sales dollar, he told the engineers.

The prime duty of the engineer in undertaking a research project, therefore, is to be sure that in some way it will benefit his company's competitive position, he declared. He listed five purposes, of which one or a combination should be the goal of any such project. They are:

- Maintenance of quality of products.
- Improvement of quality of products.
- Expansion of capacity.
- Reduction of costs.
- Maintenance of property for purposes of safety or production.

"Engineering planning which ignores these ends can be serious or even disastrous to a company—as is evidenced by the bodies on the historical battlefield of American corporate life," the speaker cautioned.

Among the more than 800 delegates at the convention, some were sales and marketing men, many with engineering backgrounds. In his plea for "a high degree of teamwork, mutual confidence, and an understanding of the common problems between engineering and sales," Mr. Cancell also asked sales people to make a sober reassessment of their role. Referring the sales training program now being used in his own company, he said it is now mandatory for salesmen to have at least a basic knowledge of "manufacturing, technology, and engineering."

However, the chief task now facing companies, Mr. Cancell indicated, is to educate engineers to measure the success of their efforts in terms of the fruits they bear in the market place.

"To sum up may I say that the engineer who will move back far enough from the job to see it broadly, will see it take on more significance and meaning," he stated. "He will then see more clearly the challenge, the obligations and the opportunities which lie ahead."

M. J. OSBORNE, chairman

BENTON R. CANCELL, keynote speaker

Engineers from throughout the U.S., Canada, and some foreign countries converged at the Shoreham Hotel on the outskirts of Washington for the four-day conference. A total of 17 sessions, all keyed to the conference theme of boosting profits and cutting costs through engineering, were held. In addition to the opening conclave, there were sessions on: corrosion, industrial engineering and materials handling, drying, sanitary engineering, engineering economics, chemical engineering, process instrumentation, fluid mechanics, mechanical engineering, steam and power, operations research, electrical engineering and maintenance engineering (see p. 40).

The tone of the meeting, as set by Mr. Cancell's talk and Mr. Osborne's statement of purpose, was serious and businesslike. At the same time, the conference gave old friends, separated by distance, the opportunity to meet again, and provided a congenial atmosphere to make new acquaintances. Hospitality suites were open throughout the hotel. Many TAPPI members were accompanied

Waiters nearly cancel Cancell breakfast

WASHINGTON, D.C.—About 15 TAPPI leaders arranged to honor Benton R. Cancell, St. Regis executive vice president and conference keynoter, at a breakfast.

A sign placed by the hotel outside the door of the breakfast room proclaimed in large, black letters: "Cancell Breakfast."

As the breakfasters stood around outside the door exchanging morning greetings, waiters appeared, suddenly whisked away settings and cloth leaving a bare table, then began to depart with their cart down the hall.

Headed off by TAPPI men, it took a little explaining to convince them that "Cancell" was the name of the honored guest, not a directive calling the breakfast off.

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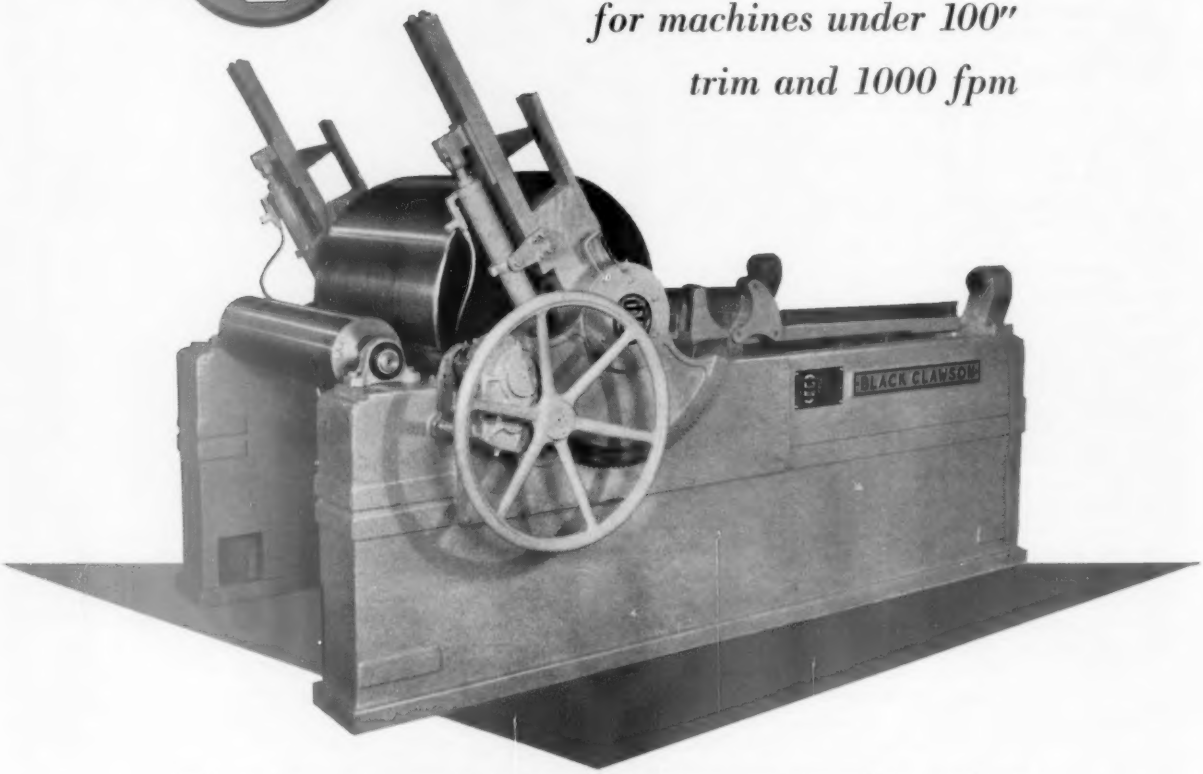

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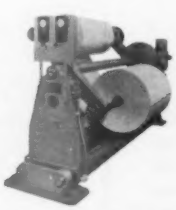
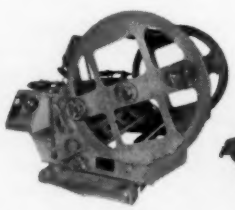
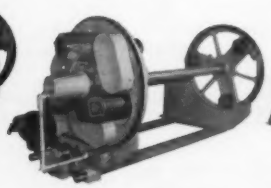


Model 20F Unwind



Model 21 Unwind



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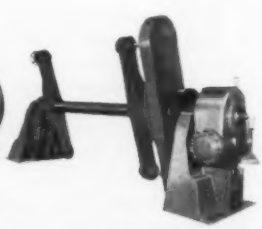

Model 52 Winder

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by their wives, who took special tours of the nations capital.

At the final night banquet, Robert C. Seamans, Jr., associate administrator, National Aeronautics and Space Administration, spoke on "The Role of Industry in Space Exploration."

Mr. Osborne, interviewed by PULP & PAPER, listed as highlights of the meeting "an enlightening" panel discussion on compters that are now planned or being built, the sanitary engineering session, and the fluid mechanics session. Of sanitary engineering, he said, it "is a must for the industry." The session, he added, "removed the industry's light from under the bushel." The chairman said that fluid mechanics "is the only field in which fundamental research is being done in the industry on the little known behavior of fibers in solution."

Industry's 'clean streams' projects lauded

Editor Al Wilson keynotes sanitary engineering sessions

WASHINGTON, D. C.—Pollution control, one of the industry's most expensive and complex engineering problems, was a major topic of study here.

Spotlighted by recent enactment of a stronger federal anti-pollution law, stream improvement is drawing increasing attention from the industry and public alike (PULP & PAPER, Aug. 21, 1961, p 47).

As a result, pulp and paper sanitary engineers, responsible for finding solutions to the pollution problem at low cost, devoted an exhaustive, two-part session to exploring new abatement techniques in use in the industry.

Albert W. Wilson, PULP & PAPER editor, opened the session with a hard-headed appraisal of current official attitudes toward the industry's multi-million dollar effort to eliminate pollution in the nation's streams.

ALBERT W. WILSON, PULP & PAPER Editor

The outlook is for

- Greater intervention by the federal government in state pollution matters.
- Enforcement of more stringent measures in some states.

At the same time, Mr. Wilson pointed out, government action against pulp and paper companies might not be as harsh as some in the industry fear it will be. Sketching in the background of the new federal law, he noted that President Kennedy has said that he favors a moderate interpretation of its provisions.

Washington's broader power stems from a provision extending its control to all "navigable waters," which includes waters that previously had been designated intrastate, and a provision that permits a municipality to ask federal intervention with the concurrence of a state's governor or state pollution control board.

However, Mr. Wilson, warned, despite the possibility of a moderate enforcement policy, the industry can expect exertion of greater pressure than it has felt in the past to reduce pollution.

"We must face the fact that we now have a stronger federal law, and also that this industry is going to have to live with pollution boards, no doubt, forever," he declared.

Mr. Wilson praised past and present industry efforts to fight pollution, noting that it has already spent more than $100 million on abatement projects throughout the country.

"But all too often," he added, "these projects have not received the credit they deserve from government and the public." The main reason for this, according to Mr. Wilson, is that the story of industry's accomplishments has not been adequately told.

He pointed to the case of a company that is involved in a pollution abatement suit brought either by a state or federal authorities. "Even if a company wins," he said, "we're right back where we started from, because suits of this kind always are discussed in terms that are unfavorable to the industry."

It is common knowledge within the industry, he told the engineers, that pulp and paper companies are interested in improving the general condition of the communities in which they have mills. "But this industry," he added, "needs to get across the fact that it is doing things for the community."

While the industry is doing laudable work in eliminating pollution, it is not doing a satisfactory job of publicizing this work. "Now, the public has just a fuzzy image of industry public spirit, but what we have to create is a clear, sharp, strong image, he asserted. . . . **turn to p. 11**

MacBrayne named vice chairman

JOHN M. MacBRAYNE, vice chairman

WASHINGTON, D.C.—John M. Mac Brayne, director of general services at Union Bag-Camp Paper Corp., has been named vice chairman of TAPPI's engineering division, it was announced here.

Mr. MacBrayne replaces Nicholas Shoumatoff, who is now headquartered in London for Parsons & Whittemore.

Mr. MacBrayne is in line to succeed M. J. Osborne as chairman in 1963.

Mr. MacBrayne said that "engineering has done a big job of relieving the profit squeeze and will continue to do so by providing new tools and equipment to cut costs."

Bright idea in paper...

Turning a paper container into a pirate ship is a fun-idea. But the idea uppermost in the minds of paper makers is producing whiter, brighter, stronger papers. Including coated paper containers, moisture-resistant enough to sail the wildest creek!

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But, if the industry is partly to blame for its poor public relations in this area, it is sometimes the victim of unfair demands made by the states according to PULP & PAPER's editor. For example, he noted, the state of Washington is now demanding that four sulfite mills install highly expensive facilities to recover 85% of the chemicals from their cooking liquors, without taking into account the fact that two of these mills had previously built costly pollution control facilities to comply with state law and another is already making a high recovery. He cited other examples to underline the need for establishing standards to guide a company planning to undertake anti-pollution measures.

Mr. Wilson said state agencies also should adopt a policy whereby the problems of each company are dealt with individually, since they vary widely among different localities. He praised Wisconsin, which has such a policy.

"The pulp and paper industry is willing to do whatever is necessary to abate pollution," Mr. Wilson stated. "If it is killing fish, ruining water, it has an obligation to stop, and it knows its obligations."

The solution to the pollution problem, according to Mr. Wilson, is for states to set definite standards for each individual mill to follow in developing an anti-pollution program and then to stick to these standards.

With pollution becoming a major government and public concern, sanitary engineers have become important figures in the industry—and in the community, according to Mr. Wilson. Because of the technical knowledge they can contribute, they should be appointed to pollution boards, along with experts in other fields, he said. Industry also should be represented on state pollution boards, he added.

Mr. Wilson took strong exception to claims that the country will suffer acute water shortages in the future unless extensive conservation measures are taken. Such a claim is made by Sen. Robert S. Kerr's Senate Select Committee on National Water Resources. The committee forecasts that the pulp and paper industry will use 16.17 billion gal. of water in 2000. This figure is based on a prediction that the industry's paper production will increase at a rate of 3.5% a year to reach 240 million tons by the end of the century. (Last year, production was 34 million tons.)

Mr. Wilson called the figures "fantastic" and added that "the unfortunate thing about the Senate figures is that they are used simply because no other figures are available." He said industry leaders also questioned these figures. Howard E. Whitaker, chairman of the board, Mead Corp., told Mr. Wilson that the industry "might have a good chance of hitting 100 million tons by 2000."

Less water will be used per ton of paper in future years, Mr. Wilson pointed out. Factors that will cut water consumption include:

- Reduction of the pollution load.
- Vastly increased reuse of water.
- Development of processes requiring less water.

"The alarming stories about a water shortage must be discounted," the editor declared. "The problem facing the world is channelling its abundant water supplies where they are needed, not any shortage of water. We have vast supplies in the oceans, in the rivers, the rains, the snows."

Chairman of the session was W. A. Moggio, Armstrong Cork Co. Mr. Moggio said that the function of the session was the "presentation of factual data on actual operations, which represent a cross-section of the many things that are being done in the industry to control pollution."

Following the opening talk, six papers were given. Three of these papers are summarized on page 41. The remaining three papers will be treated in subsequent issues. Their subjects are: "Secondary Waste Treatment at a Specialty Paper Mill," C. F. Ackerman, Union Mills Paper Mfg. Co.; "Accelerated BOD Removal of Paperboard Wastes," L. L. Klinger, Whippany Paper Board Co.; and "Plastic Trickling Filters—Design and Operation," by V. A. Minch and J. T. Egan, The Mead Corp., and McD. Sandlin, Rome Kraft Co.

Next year's confab will be in Montreal

The 1962 Engineering Conference of TAPPI will be held in the Queen Elizabeth Hotel in Montreal from Oct. 14 through 17.

The meeting will be sponsored jointly by the Canadian Technical Section and American TAPPI. The Canadian group will handle arrangements and participate in the conference.

Steel strike chance spurs inventory building

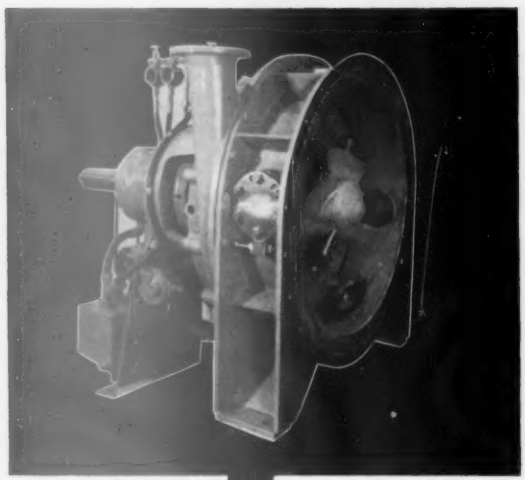
Rate of expenditures for plant equipment is climbing

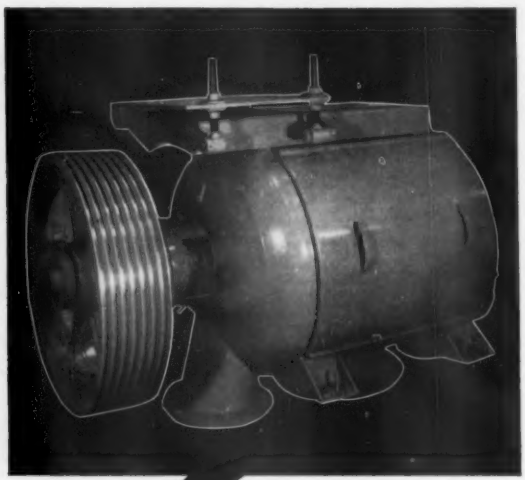
NEW YORK—The possibility of a steel strike next June will spark a rapid rise in inventory building, says Dr. Herbert E. Johnson, vice president, U.S. Economics Corp. He told 300 members of the Fibre Box Assn. at its annual meeting in New York in October that whether there is a strike or not, the current strong economic force will continue until mid-62 and will decline in the third and fourth quarter of 1962.

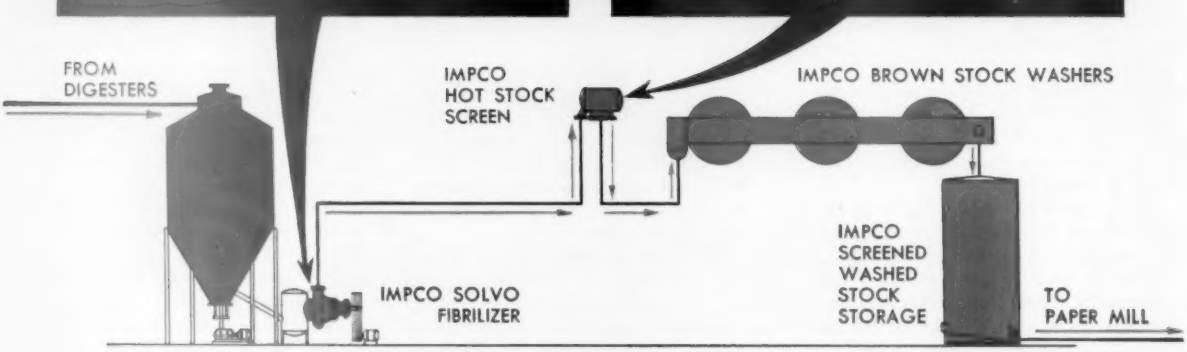
Key points in his message on the nation's economy: Housing starts should rise in the first and second quarter of 1962. Plant equipment expenditure rate is climbing and is expected to take the direction of replacement of old equipment, new equipment to make new products or relocation of old plants. Business spending in the third quarter of 1961 at the rate of $7 billion can be credited to change in inventory policies. It will hit a peak in the second quarter of 1962.

The first stage of rapid rise in production is over; inventories were built up and now business awaits the lead from the consumers, says Dr. Johnson. To date, retail sales are rising but not as fast as income. The consumer is saving most of his income. The recovery from the recession low in the first quarter of this year is now

Impco *Again* Simplifies the Pulping Process with the Fibrilizer and Hot Stock Screen







The new Impco Fibrilizer and Hot Stock Screen combination has opened the door to vast savings for the industry.

The Solvo Fibrilizer produces a combined action of pulp classification, complete soft knot defibering (not refining), hard knot shredding, higher initial yield and eliminates knot handling. Its built-in pumping action eliminates the need for a stock pump. All these operations are being accomplished for about one-half horsepower days per ton.

The new Impco Hot Stock Screen, installed directly ahead of the primary stage brown stock washer, is now producing quality pulps in several mills. This development virtually obsoletes the need for separate washed-stock screening of most paper and all board grade pulps.

The arrangement shown can be installed for high yield Kraft and Sulphite pulps with only the screen rejects requiring refining.

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propelled by business and government spending; consumers have not yet come forward as active bidders for industry's products. By not borrowing heavily and saving a high proportion of income, the consumer now shows a very liquid balance and is set for a step-up in spending, says Dr. Johnson.

The reluctance of the consumer to advance his purchasing rate and the enthusiasm of business to be prepared has resulted in a temporary inventory accumulation not warranted by final sales. 'We have reached the end of the rapid rise in industrial production and can look forward to a more leisurely advance in line with final consumption which should result in a 7 to 8% increase in industrial production in 1962," reports Dr. Johnson.

Personal income now at about $422 billion will be at the $450 billion mark by the end of next year. Spending for services is rising. A few less than 6 million cars will be sold this year and this should rise to about 6.7 million in 1962. Consumer spending for durables should rise. Here's the picture for consumer spending for 1962, by quarters: $354 billion 1st; $359 billion 2nd; $369 billion 3rd; and $367 billion for the 4th quarter.

The FRB productivity index now is at an all time high, reached 113 in August, will increase to 115 in November and December. Steel strike possibility should raise it to 118.

GNP for the fourth quarter of this year will be about $537 billion, is expected to react as follows next year: $548 billion for first quarter, $557 in the second and $558 billion in the third quarter.

Demand for fiber boxes reports Dr. Johnson, will advance a strong 8% in line with growth of industrial and consumer markets. Demand next year should reach 2.37 billion sq. ft /week compared with an estimated 2.2 billion sq. ft /week in 1961. The year 1961 will register a significant advance of 5% from depressed 1960, a year of inventory liquidation, says Dr. Johnson. ■

. . . BRIEFS

Canadian report spells out profits for U.S. companies

OTTAWA—Profit opportunities in Canada's paper industry are pinpointed in a special three-part industry survey issued by the Ontario Dept. of Commerce and Development. Report One shows how U.S. companies can establish manufacturing agreements with more than 750 Canadian concerns now seeking such arrangements on a royalty or joint venture basis. Advantages: savings on customer customs duties, in many cases a ready-made Canadian distribution set-up, entry into British and Commonwealth markets.

Report Two stresses that while Canada now fills a major part of U.S. newsprint requirements, other items offer opportunities such as wrapping paper and hardboard.

Report Three is a breakdown of "fabrication gaps" in Canadian industry. Some 71% of Canada's current imports of wood, wood products and paper are wholly manufactured. Leading prospects for local manufacture are hardwood flooring, insulating board, wallboard, paperboard containers and photographic paper.

The guide is available from the Ontario Dept. of Commerce and Development, Box WP, Suite 1307, 680 Fifth Ave., New York 19.

Marathon to shut down Menasha No. 2 machine

MENASHA, WIS.—A combination of factors—age, narrow width and slow speed—have brought about "a condition of forced obsolescence that makes it economically impractical" to continue operation of its 60-year-old paper machine here in the Canal plant of the Marathon Division of American Can Co. Increased production of similar grades by other Marathon mills more than offsets this machine's tonnage, says the company.

Lester H. Sebora, Canal plant manager, says he is optimistic that employment can be found within other Marathon operations for the 25 workers who will be affected. Permanent shutdown is scheduled by January 1, 1962.

Scott's earnings top all previous records

PHILADELPHIA—For the first nine months of this year, net earnings for Scott Paper Co. were up 4.6% to $20,754,911 over the $19,833,047 cleared in the corresponding period of 1960. Earnings were $2.48 each, compared to $2 45 in 1960.

September sales were higher than any month since Scott started business in 1879. Scott President Thomas B. McCabe said that output of Scott apparel and industrial foam, and paper from its Mobile, Ala. mill's No. 9 machine, "contributed importantly to expanded sales in the third quarter, but most of the increase was in its established lines of paper products."

Increased earnings were all the more noteworthy in face of Scott's starting up new production facilities such as the new plant near Eddystone, Pa. to make Scott apparel foam and start-up of the new machine at Mobile.

PCA earnings dip from $1.64 to 97¢

EVANSTON, ILL.—Annual sales of Packaging Corp. of America for the fiscal year ended June 30, 1961 were $128,731,934 compared with $138,278,790 for the same time last year. Net earnings amounted to $4,095,736, equivalent to 97¢/share for 1961 compared to $6,510,715 on $1.64 in 1960.

Association told it must bargain as a group

PORTLAND, ORE.—The Pacific Coast Assn. of Pulp and Paper Manufacturers has been ordered by a federal labor ruling to bargain as a group with unions on the matter of pensions. The association held this was a matter that each paper company should deal with separately because of differing conditions.

No urge to merge, says Bathurst

MONTREAL—Although advances have been made by other companies for a merger with or takeover of Bathurst Pulp & Paper Co., nothing has materialized and merger plans are not even being discussed at present, says Pres. R. A. Irwin.

As a result of new financing arrangements by the New Brunswick-based pulp and board mill it had been surmised that a deal was pending with other interests, but this was denied by Mr. Irwin at a special meeting of shareholders, who approved the proposed capital reorganization. ■

Mead sales and earnings dip for 40-week period

DAYTON, OHIO—The Mead Corp. reports net earnings for the 40-week period ending Oct. 1 of $8,887,829, equal to about $1.65/share, compared with $10,487,133, equal to $1.97/share, for the same time last year. Net sales were $286,055,036, compared with sales of $262,111,746 for last year.

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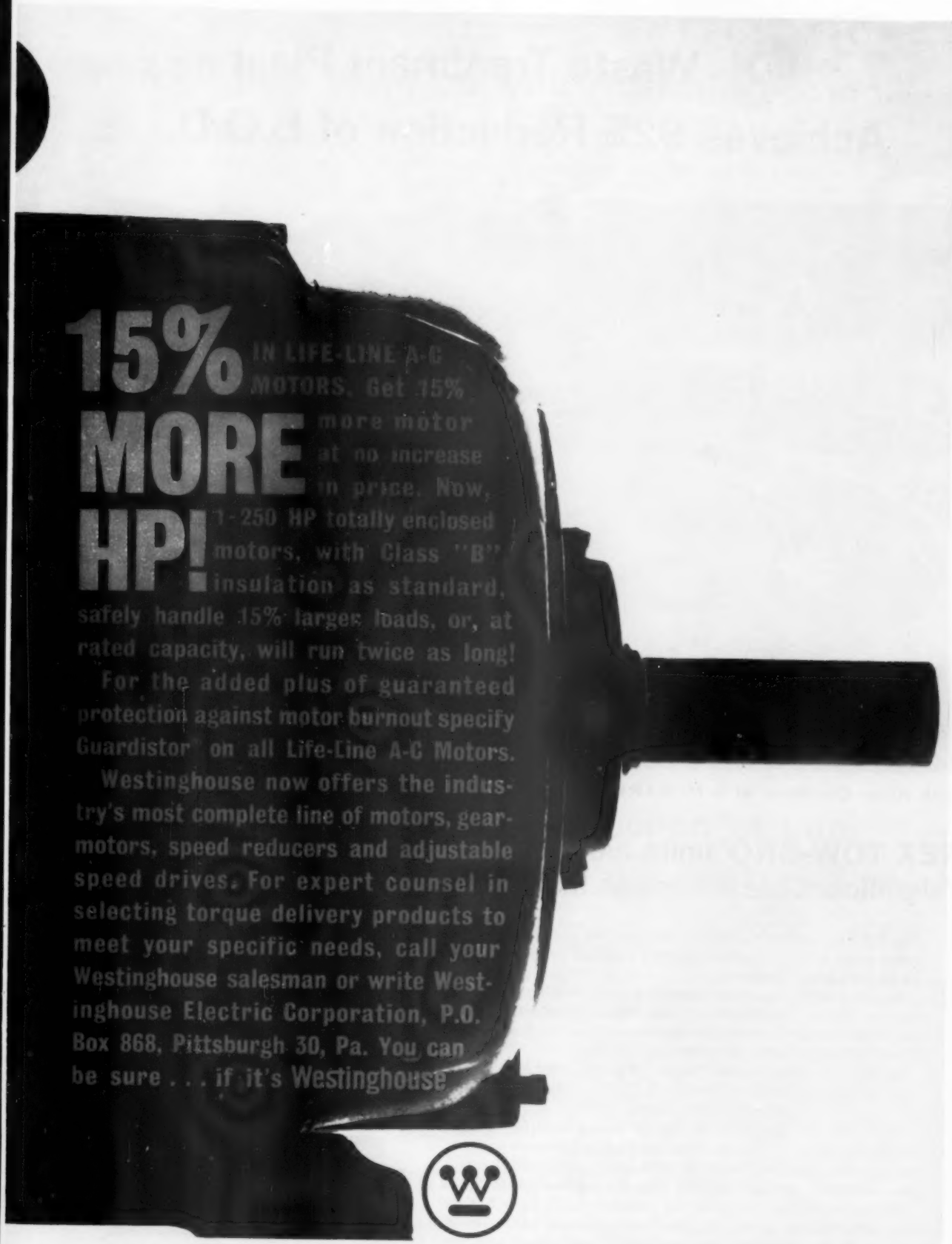
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REX TOW-BRO® units aid in "significant breakthrough in paper mill waste treatment"

The first high-degree treatment of all paper mill wastes in Pennsylvania is the mark set by the integrated pulp and paper mill of the D. M. Bare Paper Company.

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So effective is this modified activated sludge plant in the treatment of pulp and paper mill wastes, B.O.D. is reduced 92%—with corresponding high removal of suspended solids.

Moreover, the rapid removal rate of settled biological sludge accomplished by the Unitube Tow-Bro Sludge Removers prevents deterioration and gasification of the sludge. Also, sludge solids concentrations removed with the Tow-Bro are as high as 1.9%.

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MB&PR may team up with Australian sawmill

VANCOUVER, B.C.—Engineering and marketing surveys for MacMillan, Bloedel & Powell River's expansion to Australia are continuing, and annoucement of a partnership with Mount Gambier State Sawmill, owned and operated by the South Australia Woods and Forest Dept., is expected.

The Mount Gambier sawmill, processing more than 40,000,000 feet of logs annually in three separate primary production lines, is the largest in Australia as well as the newest, having been completed in 1959.

Sandwell International, Ltd. has been carrying out engineering surveys, especially with relation to the power potential and water supply. There are several pulp mills in the state, most of them producing power by steam turbines fed by brown coal from quarries they own and operate. Logs are from pinus radiata forest plantations and many of them have a diameter exceeding 20 inches. Newsprint is the probable product of the proposed new mill.

MB&PR officials are reticent in discussing the project at this juncture. Frank Brown, who made the economic surveys in connection with the proposed Kitimat mill prior to the merger of Powell River Co. with MacMillan, Bloedel, and L. G. Harris, formerly MB&PR pulp manager and now general manager of Harmac and the company's fine paper and converting mills, have recently been studying technical phases of the program in Australia. ■

....PRODUCTION

Pulp production up 1%, exports up 7%

NEW YORK—U.S. pulp producers for the first eight months of this year produced some 17,207,614 tons, an increase of 1% over 1960's 16,969,597, according to the U.S. Pulp Producers Assn., Inc. While domestic shipments dipped 6% to 1,192,836 tons, exports continued to climb.

Exports to Latin America are still rising from 1960's 91,832 tons, by the end of August were up another 23% to 113,262 tons. Exports to Europe are up only 1% but a substantial 456,943 tons and shipments to Asia, Africa and the Pacific areas are up 17% to 180,535 tons.

August shipments to Latin America climbed 53% to 19,759 tons, dipped 8% to Europe to 56,302 tons, rose 28% to Asia, Africa and Pacific to 20,360 tons.

Export markets continue to gain in importance to the U.S. market pulp producer, says Reed R. Porter, executive secretary of the Assn. of Pulp Importers, Inc. "In two years time, export shipments of paper-grade pulps have vaulted from 19% of total sales to more than 40% of total shipments," he emphasizes.

"Overseas customers are almost as important, tonnage wise," he points out "as U.S. consumers. Some day, this may be important."

"The decline in importance of the U.S. consumers to the U.S. pulp producer becomes even more dramatic when the 1961 figures are compared with the first eight months of 1959. Then, total exports were 187,988 tons compared with 773,508 tons of domestic sales; a growth of 303,216 tons in exports and a drop of almost 50,000 tons in U.S. shipments in the two year period," stresses Mr. Porter.

Other major comparisons he makes are: bleached kraft exports are up 100,000 tons; domestic sales off 67,000 tons; bleached sulfite exports are up 45,000 tons; domestic sales are off more than 20,000 tons. ■

Fiber box consumption, production at peak

NEW YORK—Although it got off to a late start, the fiber box industry will hit record peaks in production and consumption if it continues at its present rate throughout the fourth quarter. So said Alvin H. Newburg, statistician for the Fibre Box Assn. at its annual meeting here in the Waldorf-Astoria Hotel, Oct. 10-11.

Here are the high points of his report: Industry shipments in the third quarter of this year reached a new high for any single quarter in history: 2.3 billion sq. ft./week. If 1961 shipments continue at its present rate, the industry will have a total of 114 billion sq. ft., some 3.6% above the best previous year—1959 when a total of 110 billion sq. ft. was reached. Fourth quarter shipments are expected to top 2.57 bilion sq. ft.

Despite price increases, "September hit us with bigger increases than any we had had in the past year," he said.

Inventory problems have been significant this year, but at present inventory is generally in good shape, reported Mr. Newburg, with present supply of about 6.3 weeks on hand.

Production for 1961 started out well, at the rate of about 153,900 tons/week through the second quarter to a new high of 167,100 tons/week for the third quarter, which normally is the lowest point in the year.

Consumption too, has reached new levels, hitting a peak of 157,300 tons/week in the third quarter and is expected to climb up to 163,000 tons/weeks for the fourth quarter. Consumption, said Mr. Neawburg, is setting new highs even though the industry is using lighter weight board for its corrugated products. ■

Folding carton shipments dip 1.2%

CHICAGO—Shipments of folding cartons edged down in September, reports the Folding Paper Box Assn. of America. Dollar volume of shipments were off 2.8% below September, 1960, and tonnage was also off 2.8%.

Volume for nine months of this year is 1.1% below 1960, while tonnage shipments trail 1.2%. Industry

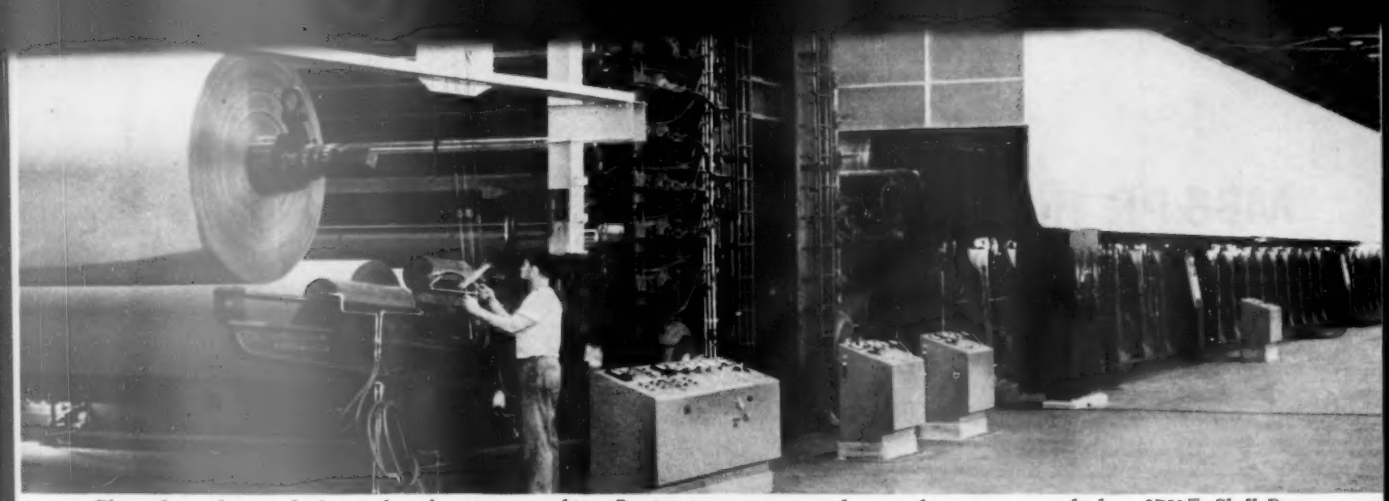

Photo shows dryer end of typical modern paper machine. Bearing temperatures on these machines may go as high as 370° F. Shell Paper Machine Oil was designed specifically to overcome lubrication problems in today's paper mills. (PHOTO: COURTESY ST. REGIS PAPER CO., JACKSONVILLE PLANT)

SPECIAL OIL:

Non-hydrolyzable Shell Paper Machine Oil helps prevent sludge deposits —even with today's higher dryer temperatures

Shell scientists developed Shell Paper Machine Oil specifically to combat lubrication problems found in the more severe operating conditions of today's paper mills.

It has excellent load-carrying properties. It resists rust formation, oxidation, foaming—and reduces sludging.

Here are the facts.

TODAY's increased dryer temperatures have pushed bearing temperatures as high as 370° F. New lubrication problems have turned up.

With many conventional oils used for paper machine lubrication, lacquer and sludge deposits in oil circulating lines and in moving parts, such as bearings, can cause unscheduled delays, increase maintenance costs.

And in some cases, these oils do not tolerate water. Oil-water interaction may lead to plugged bag filters, stained metal surfaces. And even deterioration of cotton bag filter elements.

Shell's exclusive additives solve the problems

To overcome these problems, Shell scientists developed an oil containing special additives that resist interaction with water.

Shell Paper Machine Oil is specially formulated to resist rust formation and inhibit oxidation. And it has excellent load-carrying properties.

Three additional features

Here are three additional features of Shell Paper Machine Oil:

1. Shell Paper Machine Oil has excellent foam resistance. You can use it in roll drive gear integrated circulating systems as well as in dryer bearings.

2. Shell Paper Machine Oil is designed for machines that run at high temperatures and with high steam pressures.

3. Shell Paper Machine Oil comes in two grades to suit a range of operating temperatures and steam pressures. *Shell Paper Machine Oil 68*—for steam gauge pressures of 30 to 50 psi. *Shell Paper Machine Oil 72*—for steam gauge pressures of 50 psi and up. Minor fluctuations of temperature have little effect on the viscosity of either grade.

These three features of Shell Paper Machine Oil help prevent clogged oil lines and bearing breakage. And they improve load-carrying capacity.

For full data on Shell Paper Machine Oil, see your Shell Industrial Products Representative. Or write: Shell Oil Company, 50 West 50th Street, New York 20, N. Y.

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volume in September was $83.1 million, down $2.4 million from the $85.5 million in September of last year. The 1961 cumulative totals $693.4 million compared with $700.8 million during the first nine months of 1961.

New orders placed in September were running 4.5% over the dollar volume and 5.4% ahead of tonnage of bookings reported in the same time last year. New orders for the first nine months of this year have surpassed the same period last year by 0.2% in tonnage and 0.5% in dollar volume, reported the association. ■

Pulp prices unchanged for fourth quarter

NEW YORK—Market pulp prices appear to have stabilized for the past four months and despite some strengthening in paper prices, no increases have been reported. Bleached kraft pulps with a GE brightness of 90 and higher are listed at $150/ton, while 86 brightness pulps are selling at $140/ton. Hardwood kraft ranges from about $135 to $140/ton.

Semi-bleached kraft pulp is around $130/ton; while unbleached kraft ranges from $120 to $125/ton.

Bleached sulfite of 90 brightness and higher is about $140/ton; while 86 brightness is around $135/ton. Hardwood sulfite is $137/ton; soda pulps are $130 to $135/ton. ■

Howe Sound plans 50% expansion

VANCOUVER, B.C.—Canadian Forest Products, Ltd. has big plans for its Howe Sound Pulp Division at Port Mellon. The aim is to make the mill a 600-ton producer of bleached kraft pulp.

Capacity of the mill has already been doubled since it was taken over by CFP from Sorg Pulp Co. which operated it during the war. Rated capacity is now 400 tons of fully bleached kraft pulp daily. This will be increased to 500 tons during 1962 and the full program calls for a further increase to 600 tons, making it one of the largest in Canada and second only to Harmac mill of MacMillan, Bloedel & Powell River in B.C.

The company will install a 325 ton Kamyr continuous digester. This will operate next spring with two batch digesters, while seven older batch units will be temporarily retired. Another Kamyr continuous digester may be added later when the 600-ton objective is realized. Sherbrooke Machineries (Impco) is putting in the bleach system.

Canadian Forest Products is continuing surveys in anticipation of possible expansion in the Prince George area, but definite plans for a pulp mill there have not yet been announced. ■

. . . BRIEFS

St. Croix selects Mead to sell groundwood papers

BANGOR, MAINE—Mead Papers, Inc. has been named by St. Croix Paper Co. as exclusive distributors for a new line of groundwood printing paper grades. St. Croix, which has concentrated in newsprint production until now, recently rebuilt it No. 1 paper machine last year, now has a paper machine capable of making groundwood specialty grades.

Explains St. Croix President Curtis M. Hutchins, "Since this is a new field for us, especially where sales are concerned, we have turned to a veteran in this business. Mead will handle sales of groundwood grades only and will not be responsible for any newsprint production."

S. D. Warren wins "oscar" for its annual report

WESTBROOK, MAINE—For the second consecutive year, S. D. Warren Co. has received a first place award for having issued the best stockholder annual report in the pulp and paper industry. The award is sponsored by Financial World magazine.

Peninsular paves way for new paper machine

YPSILANTI, MICH.—Construction is expected to start here soon on a new building which will ultimately pave the way for a new paper machine. Here's how it works. Another new building, completed here recently, is presently being used for warehouse space. When the new building is finished late next year, it will house finishing, shipping, warehousing and also the company's new general head offices. The present building which is being used for warehousing was originally designed for a paper machine. It will be so used when the new building is completed.

Peninsular presently produces about 40 tpd of cover, colored specialties, sulfite and bleached kraft specialties.

Union Bag-Camp seeks merger with Doeskin

NEW YORK—An offer of $4,662,000 has been made by Union Bag-Camp Paper Corp. to purchase Doeskin Products Co., Inc. Doeskin has been operated by two federal court-appointed fiscal agents for almost a year. The Union Bag-Camp offer is exclusive of tax claims and claims against the company in any pending litigation. A hearing has been set for Nov. 10 to consider the offer.

Southwest Forest borrows $5 million to expand

PHOENIX—On eve of start-up of its new pulp and paper mill at Snowflake, Southwest Forest Industries has taken on additional financing to build and acquire paper converters and for further working capital.

SFI is building a grocery bag manufacturing plant at its pulp and paper mill at Snowflake and has entered into an agreement with stockholders to acquire Premier Container in Chicago.

The grocery bag plant will consume about 800 tons/month of the kraft mill's production and is expected to be in production early in January.

Premier Container Corp. is an established converter of corrugated sheet stock into corrugated boxes and con-

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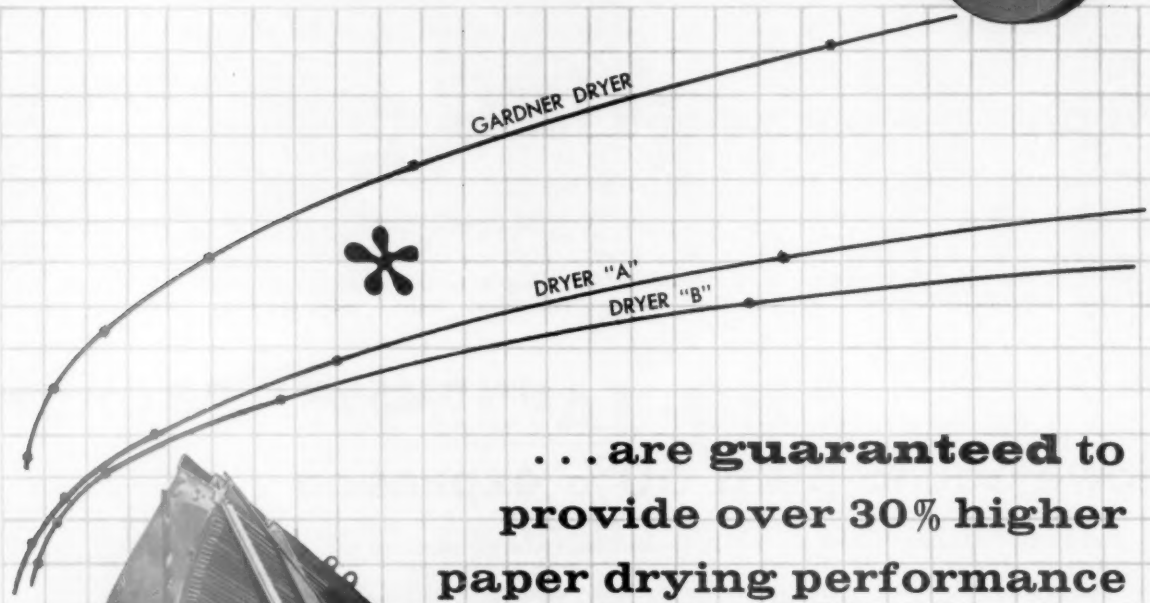
Custom-Engineered for the Paper Industry by OVERLY'S INC.



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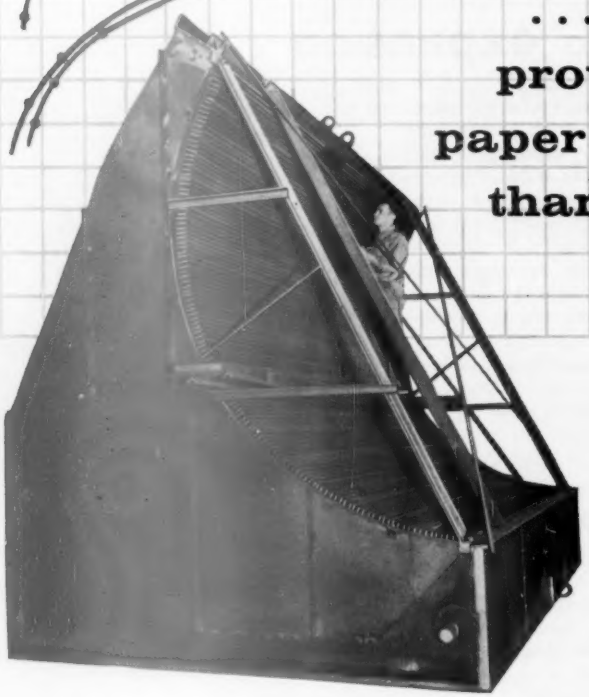

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Procter & Gamble eyes big increase in tissue

CINCINNATI—Neil McElroy, chairman, The Procter & Gamble Co., told shareholders at their annual meeting that P&G plans a substantial increase in paper tissue production at Charmin Paper Products plant at Green Bay, Wis. Charmin recently started up a fast tissue machine at this mill and industry observers say it is out to "get a big chunk" of the tissue business, which may mean other machines will be added.

CCA building new folding carton plant near Chicago

CHICAGO—Container Corp. of America is constructing what is said to be one of the largest folding cartons plants in a suburb near here. The 350,000 sq. ft. plant on a 30-acre site at Carol Stream, Ill., will handle folding carton operations carried on since the late twenties at CCA's West 35th St. plant in Chicago. Operations are expected to begin by end of 1962 with about 400 employes.

In addition to the production unit, the Carol Stream facility will include a two-story, 36,000 sq. ft. office building housing sales and administrative staff and the company's central design laboratory and packaging museum.

Program readied for West Coast PIMA

MORE THAN 350 are expected for the annual fall meeting of Pacific Coast Division, PIMA, in Seattle, Wash. Nov. 30-Dec. 2. The program features round-table discussions on kraft and sulfite pulping, papermaking, finishing-converting. Also to be discussed are new developments in plant applications, techniques and procedures.

What can be accomplished in the pulp and paper industry by integrating production and sales will be covered by Harry A. Hayward, vice president and sales manager of R-W Paper Co., Longview, Wash. Fiberglass applications in the industry and encapsulation of electric motors are to be discussed by specialists of these respective fields. Other papers include one on Weyerhaeuser Co's. safety program and Inland Empire Paper Co's. approach to personnel relations.

Arrangements for visits to several pulp-paper mills in the Puget Sound area have been made.

Louis W. Pumphrey, Westminster Paper Co. Ltd., New Westminster, B.C., and chairman of Pacific Coast Div. PIMA, will be general chairman of the meeting. Technical program arrangements have been headed by A. Hugh Wickett, Weyerhaeuser Co., Longview, Wash., 1st vice chairman of Pacific PIMA. Other division officers include Hardie L. Forkner, Inland Empire Paper Co., Millwood, Wash., 2nd vice chairman; Henry L. Stoltz, R-W Paper Co., 3rd vice chairman; J. M. Wilcox, Esco Corp., Portland, Ore., secretary-treasurer. Les Peterson, of Morningstar Paisley Inc., Portland, is industrial affiliate rep. ■

Excitement in West over logs sent Japan

Alder use grows. Cedar next? Too many chips spoil chip "pi(l)e"

By ALBERT W. WILSON, Editor, PULP & PAPER

SEATTLE—There are about as many versions to be heard of the current steady and lucrative export movement of Pacific Coast logs to Japan as Hector has fleas.

After listening to all the various versions, including angry criticism and demands that Uncle Sam put a stop to the log movement, a touring PULP & PAPER editor has a hard time knowing just where to start this report.

Generally, pulp and paper industry officials have no complaints and in some cases they themselves are shipping cull logs or logs they do not want to Japan. The Japanese are paying a good price. One pulp and paper mill manager said he was informed that 100 board feet (about two cords) cost the Japanese $100 by the time it is delivered. The Japanese are using every sliver of wood and the sawdust, too, he said.

The loggers are happy

—those that are involved in the business. Small sawmills which say they cannot match the Japanese prices are protesting vehemently and some have reportedly shut down. One big sawmill in the Port Angeles area says it may have to quit. But, of course, these mills were already in dire trouble, due to the depressed lumber market.

"There's nothing about this situation which could not be cured by a shot in the arm for the domestic lumber prices," said one pulp and paper man who is handling an important lumber sideline business. But what prospect is there for a comeback for lumber? Are the old days of lumber booms gone forever, with new synthetic and other building materials grabbing off much of the market?

One pulp and paper man said, however, if this became a permanent export to Japan—if it kept up for years to come at a high level—it might be felt some day by the searchers for pulp raw materials. The search certainly isn't critical today, with a continuing oversupply of pulp capacity.

Sawmill unions in Oregon have been complaining. The government held a congressional hearing in Portland, Ore., on the Japanese exports, because of the hullabaloo, but didn't come to any significant decisions. If the kicks are loud enough, Oregon

state may take some restrictive action.

A lot of the logs being shipped would not be harvested at all, if it were not for the Japanese demand. One forestry leader says "this is giving work to Americans in the woods, and all the way to the ship, so why wave the flag against it?"

Actually the amount of logs being shipped to Japan is only from 2 to 4% of production—at least up to the time this was written. It doesn't look like it will be much greater.

One big timber company, with pulp and paper units, too, is shipping what its people call "matchsticks"—small stuff it doesn't want.

One big holler however, is over whether the Japanese are re-exporting finished wood products back to the United States. Reliable evidence is that Japan is converting the logs for its own use. There is a great shortage of wood in Japan, which is the reason for the Japanese pulp mill in Sitka, Alaska. They are working hard to make possible the building of another pulp mill in Alaska. Japanese representatives in Seattle say they don't want to buy wood from Russia if they don't have to.

Reports are that many of the logs are used as piles to support new housing in Japan, and also that they want lumber to replace the historic "papier-maché" houses of Japan.

The present hullabaloo recalls the pre-war period when Japan was importing so-called "Japanese squares" from United States—roughly squared logs. In those days there was no value in slabs or wood residues, now used for pulp, and the Japanese didn't want them, either. That so-called crisis of the Pacific Coast forests didn't last very long, but it inspired a lot of debate and many columns of sensational newspaper articles.

Cedar for pulpwood is the newest excitement in the Far West, and in the long run this promises to be a bigger story than Japanese exports. Pulp mills are testing cedar and, with the present bleaching methods, it is voted a good new pulp source. It has all the qualities of other favored wood species, except in burst tests and in this respect is only slightly below other species. There is lots of cedar in the Far West.

For the first time in history, the U. S. Forest Service is permitting export of cedar logs. Alaska is one area where new pulp mills may be big users of cedar.

The usage of Western alder is increasing by leaps and bounds. The Scott mill at Anacortes, Wash., was undoubtedly saved from closing by alder. Now two big mills on the Olympic Peninsula are using up to 25% farmers' alder for kraft and newsprint paper. Only a few years ago, alder was given the "kiss of death" when researchers said the reddish hues prevented its use. And now three paper mills are using sawdust, also.

The new trends in Western cedar and alder recall over 30 years ago when Western hemlock was considered worthless for pulp. But now it makes some of the best pulps.

One odd development—one Western mill is getting too many chips from sawmills. Can't stop it because of contracts. Chips are being made today by 65% of West Coast sawmills.

Some sawmills, facing lack of lumber market, are putting most of their wood through chippers!

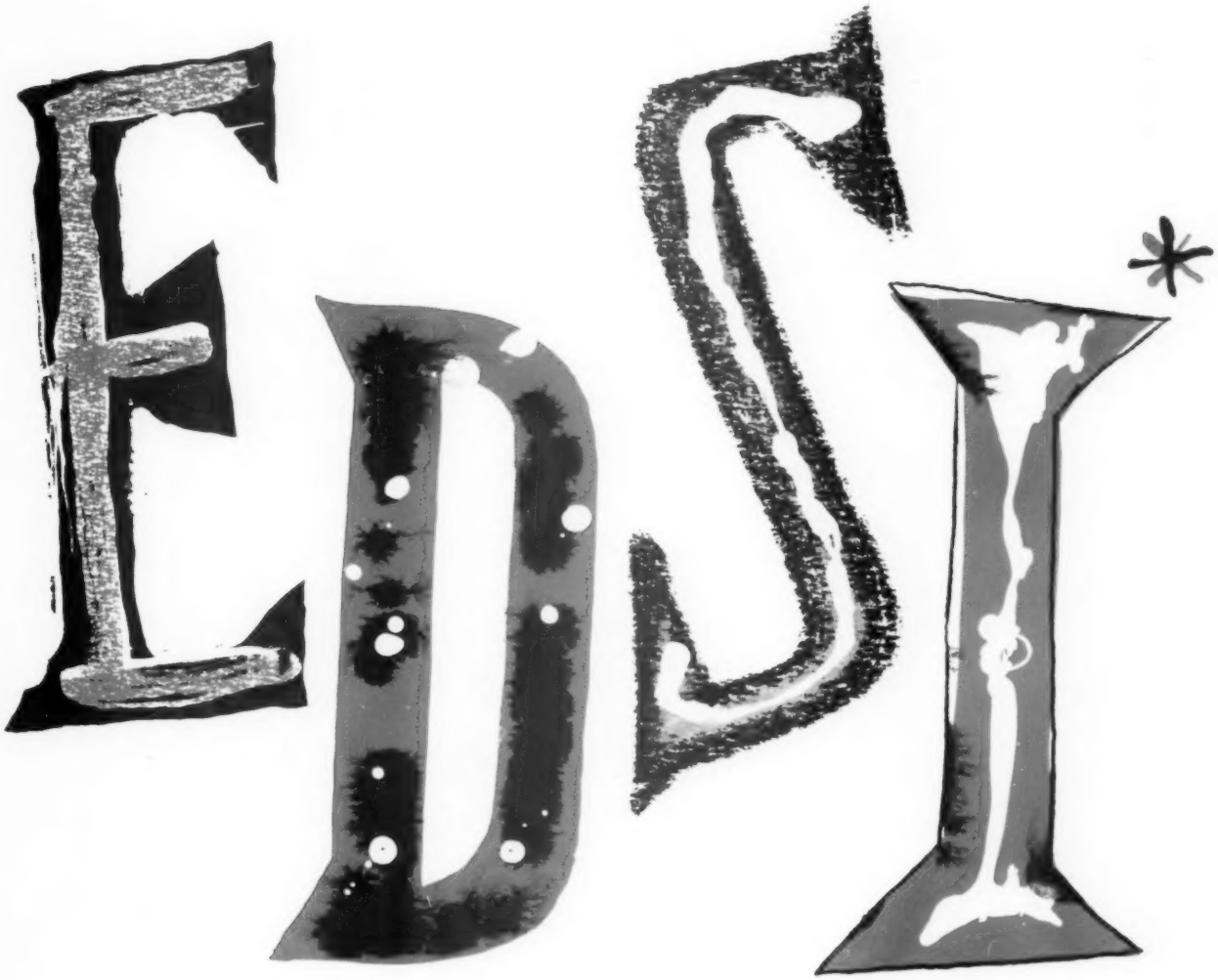
Hungry tax collectors threaten another serious wood supply problem in the Far West. The search for more tax revenues threatens to upset the long-term lenient tax program for those forests which pulp, paper and timber companies want to hold intact for future decades. Tax concessions were made because of the slow-growing character of the Western species. Legal loopholes may wreck these conservation programs.

Companies may have to face the question of going into these lands, cutting and getting out. But, certainly, no major pulp and paper producer wants to do this. A test case in Washington state could cause a trend that would be disastrous to long-term conservation plans. ■

Helicopters used for silviculture

"CHEMICAL 'COPTER" whirls into the West Coast air, demonstrating one of the industry's latest techniques for controlling or eliminating brush which otherwise might retard or kill coniferous seedlings. In addition to spraying chemicals, helicopters also were used last year to "spray" tree seed onto 150,000 cut-over acres of private holdings in western Washington and Oregon.

TREE-TOP MANEUVERABILITY enables helicopters to do an efficient job of spraying chemicals and seedling. During the past three years at Weyerhaeuser Co. forests, where this photo was taken, 22,000 to 27,000 acres have been seeded annually by helicopter. Another use to which forest management is putting the helicopter is hauling logs out of woodlands. (PULP & PAPER, June 12, 1961.)



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MEETINGS

. . . November

TAPPI, Annual Alkaline Pulping Conference, Rice Hotel, Houston, Texas—Nov. 1-3.

Empire State TAPPI, Western Section, Crown & Anchor Restaurant, Niagara Falls—Nov. 1.

Pacific TAPPI, papermaking-screening session, Longview, Wash.—Nov. 14.

Manufacturing Chemists' Assn. 11th semi-annual meeting, New York City Nov. 21.

Pacific Coast PIMA annual fall meeting, Olympic Hotel, Seattle, Wash.—Nov. 30-Dec. 2.

. . . December

Virginia-Carolina TAPPI, Jefferson Hotel, Richmond—Dec. 1.

Western Forestry & Conservation Assn., 52nd Conference, Benson Hotel, Portland, Ore. Dec. 6-8.

Empire State TAPPI, Western Section, Crown & Anchor Restaurant, Niagara Falls—Dec. 6.

Gulf Coast TAPPI, Battle House, Mobile, Ala.—Dec. 6-8.

. . . January

Connecticut Valley PIMA, Publick House, Sturbridge, Mass. Jan. 11.

Gulf Coast TAPPI, Stafford Hotel, Tuscaloosa, Ala.—Jan. 12-13.

Pacific TAPPI, Engineering Conference, Bellingham, Wash.—Jan. 16.

Miami Valley Div., PIMA, joint meeting with Graphic Arts Assn., Carrousel Motel, Cincinnati, Ohio—Jan. 18.

Michigan Div., PIMA-TAPPI, annual papermakers get-together, Hotel Harris, Kalamazoo, Mich.—Jan. 18.

Miami Valley PIMA—Jan. 23.

Canadian Pulp and Paper Assn., technical section, annual meeting, Queen Elizabeth Hotel, Montreal—Jan. 23-26.

. . . February

Paper Week: TAPPI, Commodore Hotel; **APPA,** Waldorf Hotel; **APA,** Roosevelt Hotel, New York—Feb. 18-22.

. . . March

Michigan Div., PIMA, Inman's Restaurant, Galesburg, Mich.—Mar. 15.

Pacific TAPPI, Shibley Award meeting, Camas, Wash.—Mar. 20.

Gulf Coast TAPPI, San Carlos Hotel, Pensacola, Fla.—Mar. 23-24.

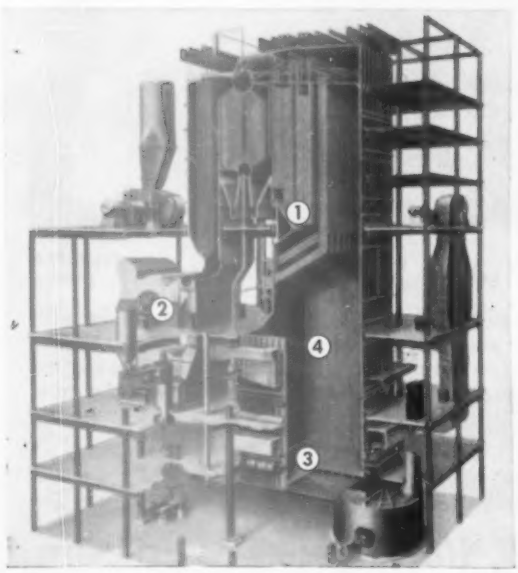
Miami Valley Div., PIMA, Manchester Hotel, Middletown, Ohio—Mar. 27.

. . . May

TAPPI, 13th Coating Conference Netherland-Hilton Hotel, Cincinnati, Ohio—May 14-16.

The Tacoma mill of St. Regis Paper Company.

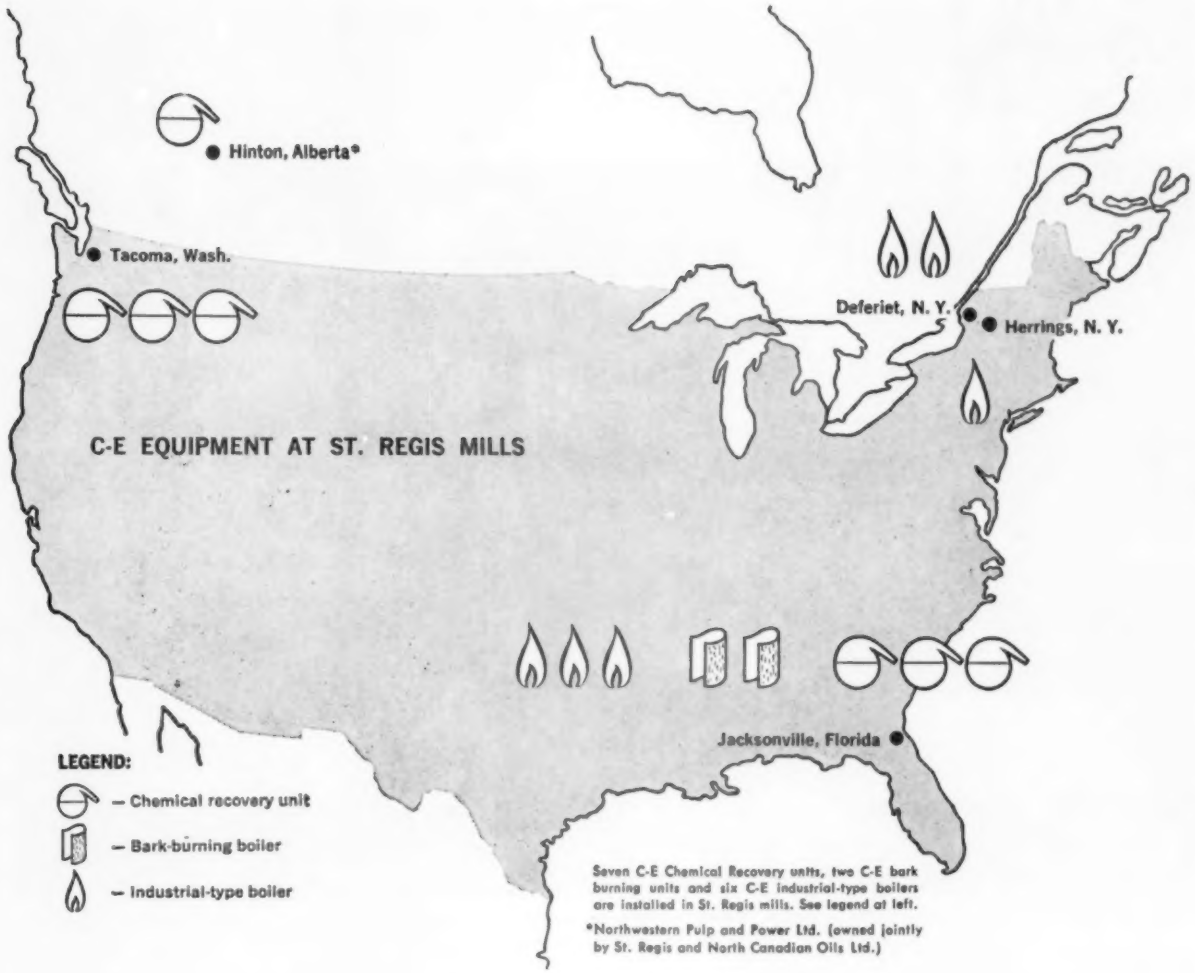
INSTALLS ITS SEVENTH AND LARGEST



Advantages of the C-E Recovery Unit

1. **TANGENT-TUBE CONSTRUCTION** of screen and superheater sheds slag which falls directly to furnace floor. Gas flows freely, at low velocities — giving lower draft loss.
2. **CASCADE EVAPORATORS** require a minimum of power and maintenance. Dependable, low-cost chemical collectors and liquor concentrators contribute to furnace stability.
3. **WATERCOOLED DECANTING HEARTH** protects floor refractories from erosion with a layer of chilled slag. Hearth maintenance is eliminated.
4. **TANGENTIAL SECONDARY AIR** gives gases a spiraling, turbulent motion, causing good mixing and longer gas travel in furnace. Rapid, complete combustion reduces unburned char leaving furnace zone.

ALL TYPES OF STEAM GENERATING, FUEL BURNING AND RELATED



C-E CHEMICAL RECOVERY UNIT

Combined capacity of recovery units: 2,400 tons

As part of the thirty-million-dollar expansion of its Tacoma mill, St. Regis Paper Company recently started up its seventh and largest C-E Chemical Recovery Unit.

The seven-story boiler is designed to burn 1,400,000 lb of dry solids daily and has a steam capacity of 225,000 lb/hr. This is the third C-E recovery unit for the Tacoma mill. At other St. Regis mills there are installed six industrial-type boilers and two bark-burning units. Total steam capacity of all units exceeds 2,000,000 lb/hr.

St. Regis' choice of C-E equipment is typical of C-E's many repeat sales to leading pulp mills. It is the result of satisfaction with the advanced design, reliability and economical operation of C-E products. For example, since the development by C-E of the watercooled decanting hearth in 1951, the more than 60 recovery units C-E has built have been free from hearth maintenance – formerly a common cause of shutdown.

For interesting details on the high availability and savings in operating cost offered by C-E recovery units, call the C-E office nearest you or contact the General Sales Division in Windsor. C-336

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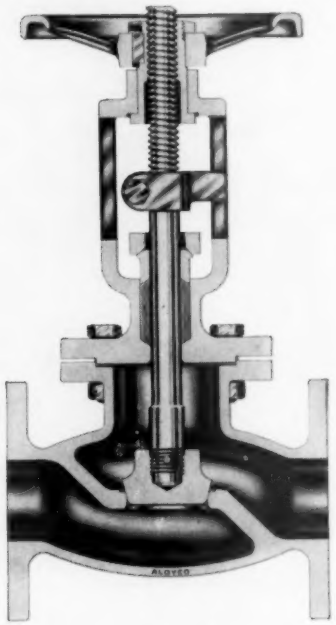

Fig. 311-B

Do you know the advantages of the new Aloyco Globe Valve design?

The design of 150 lb. globe valves of sizes 2" and larger features a non-rotating stem, non-rising handwheel with disc assembly pinned to the stem. This is accomplished by rotating the handwheel and yoke bushing assembly and preventing stem rotating by adding a stem key which fits into the bonnet yoke. The major advantages of the new design result in:

- No spiral wear pattern on stem from hardened packing or hard deposit in stuffing box.
- Rapid visual check of throttling control by observing location of stem stop.
- No galling of back seat because of rotating stem.
- No galling between seat and disc.
- Stronger disc to stem connection.
- No spinning of disc.
- Less corrosion attack because of elimination of cavity between stem and disc.

These new design advantages are available in stainless steel and corrosion resistant alloys in sizes 2" and up. For full information write for Bulletin #7, Alloy Steel Products Company, Inc., 131 West Elizabeth Avenue, Linden, New Jersey. O.11

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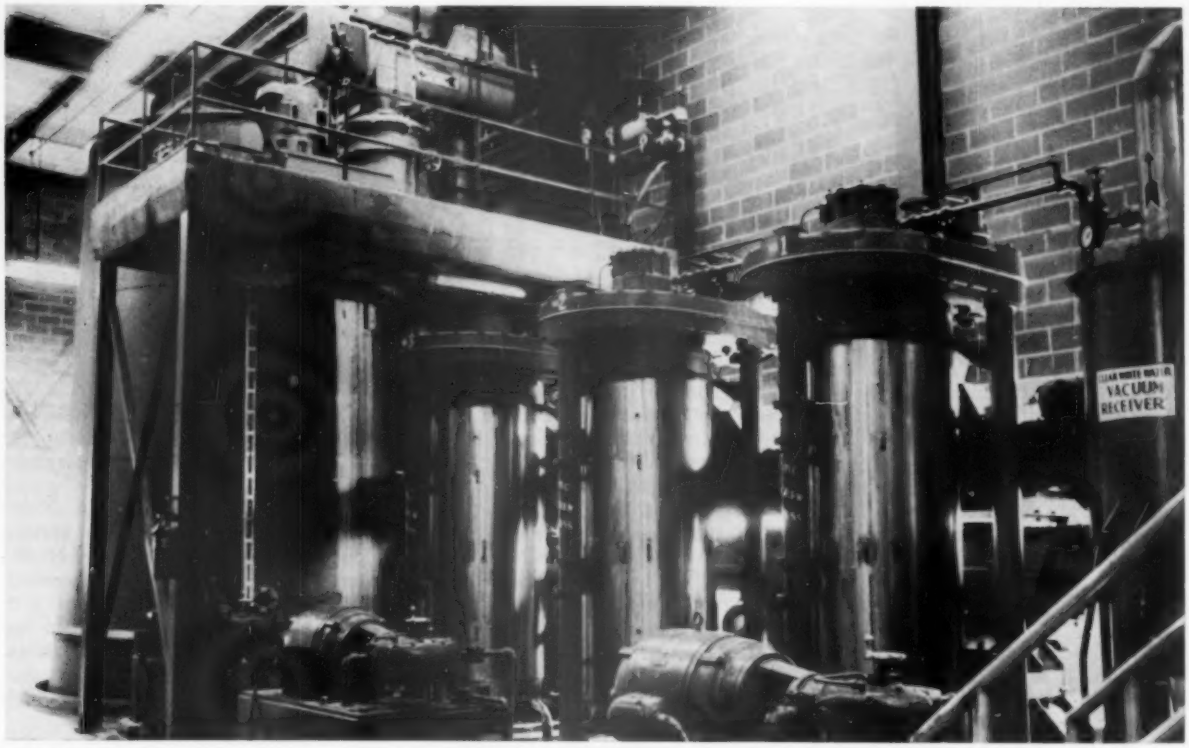


GROUNDWOOD PULP is dewatered from 12-14% density in three vertical screw presses, conveyed to Vertiflex chemical mixer (top left) and into flared bottom retention tank at left.

High Density Bleaching

SINCE JULY, 1960, St. Regis Paper Co. has been successfully bleaching groundwood pulps at a high density (25%) and achieving brightnesses in the 75 to 77 GE range. To reach this brightness St. Regis uses about 1% hydrogen peroxide in a 50% solution. Higher brightness is possible, 79 to 80, using higher quantities of HO_2. Unbleached brightness is about 60.

What's more, St. Regis reports not more than half a point reversion in brightness from pulp mill to paper machines.

Two obstacles which have hindered the development of high density bleaching have been the inability to get the stock to a high density without forming fiber bundles or knots, and proper mixing of the bleach liquor into the high density stock. Both of these problems have been overcome by the use of a special screw press and a new type mixer.

Particularly attractive are the economics of high density bleaching: Less handling of water, more efficient and effective use of bleaching chemicals. Explains St. Regis, "As you increase densities above 20%, economies increase over medium density because of the lower liquor-to-fiber ratios. It is a mass action effect. Also, chemical strength is not as diluted as when bleaching at medium densities; therefore bleaching is accompanied with fuller strength chemicals."

The success of this operation may pave the way for high density bleaching of other pulps—notably hardwoods, says St. Regis.

The high density groundwood bleaching project was a joint venture by St. Regis Paper Co. and the Becco division of FMC.

. . . high density bleaching by St. Regis

Deferiet, N. Y.

ENCOURAGED by the success of its two-year pilot plant operations here, St. Regis decided to launch into full-scale commercial production at its Deferiet 120 tpd groundwood mill. The high density system was installed in March, 1960, went into full scale production in July of the same year.

Four key factors contribute to the success of the bleaching operations: Use of an FMC vertical screw press which is widely used in the food industry and this produces a bundle-free and knot-free high consistency pulp, bringing the pulp from about 12 to 14% consistency as it leaves the washers to about 30%; use of an E. D. Jones Vertiflex, which accurately meters and mixes the bleach liquor into the pulp; flared bottom design of the retention tower which prevents arching or bridging of the high density pulp; and use of a sequestering agent to slow down the reaction time of the hydrogen peroxide in the bleach tower and which permits extending retention time from a normal 3-3½ hours to 6 hours without any adverse effects.

The bleach system is so highly instrumented that all brightness ranges can almost be dialed.

Stock flow from eight grinders is to the screens and Centri-Cleaners. Cleaned stock is pumped to the new bleach plant to a battery of four Impco 78 in. by 168 in. and four Impco 48 in. by 168 in. gravity deckers.

Total groundwood production is about 160 tpd; about 120 tpd are bleached. The deckers discharge to two surge bins in the basement. Stock to be bleached drops from an Impco stock meter to a seal box in the basement where it is diluted to 1.5% consistency with white water returning from the presses and the cloudy leg of the thickener. Level in this section of the seal box is automatically controlled to prevent loss of stock to the white water system. This meter regulator controls tonnage and all chemical applications are based on this.

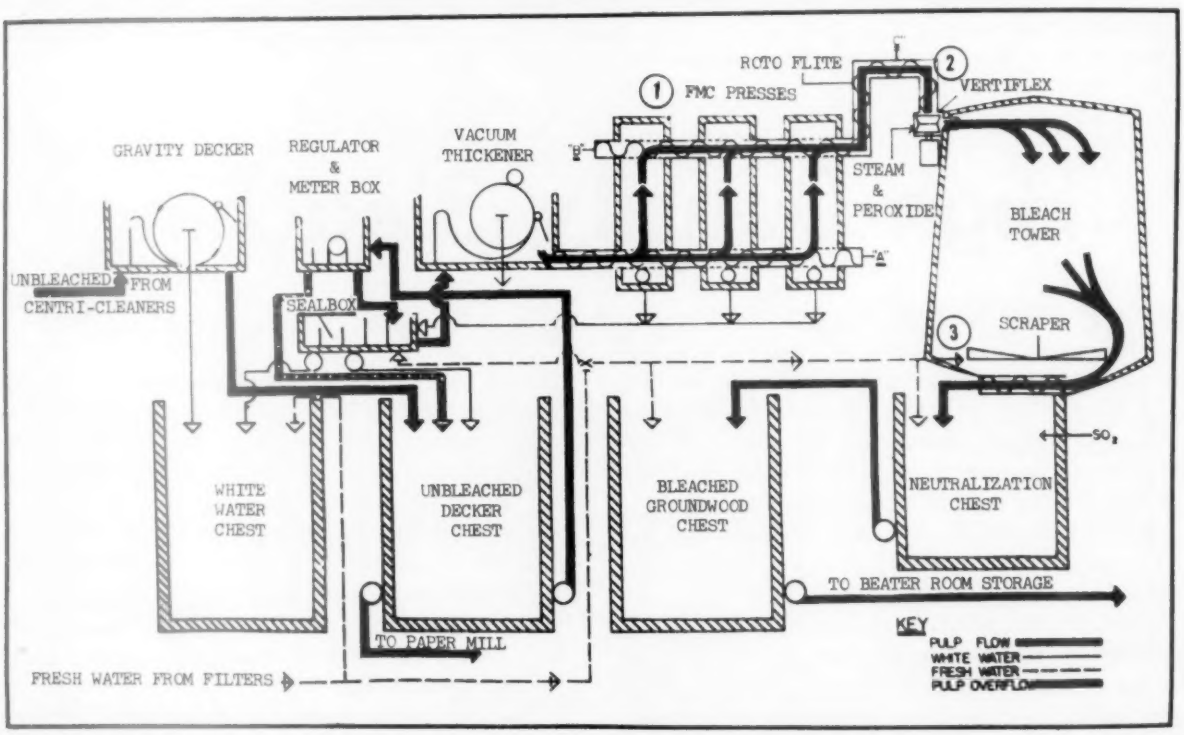
Diluted stock is pumped upstairs to the vat of an 8 ft. by 16 ft. Impco vacuum thickener where pulp is discharged to a shredder roll at 14 to 18% consistency. A Link-Belt horizontal screw conveyor system passes under the shredder roll and directly above the hopper of the feed screw conveyors to the three FMC screw presses. Holes have been cut into the bottom of the conveyor to permit regulating pulp flow to each press by altering the area of each hole with a sliding door.

Each of the three screw presses is rated at 40 tpd, but output has reached as high as 68 tpd with a Canadian Standard Freeness of 60. Normal output is about 40 tpd.

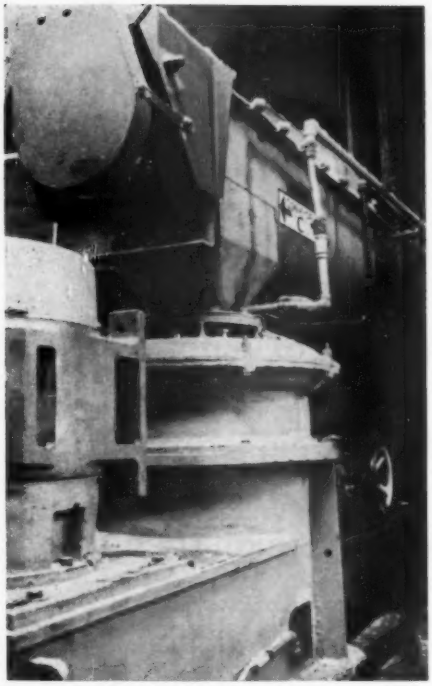
The screw press has a tapered spindle surrounded by an ascending thread with interrupted flights, mounted inside a cylindrical screen frame. As the spindle rotates, the upward pitch of the spiral screw carries the pulp upward through an increasingly smaller gap between spindle and screen.

The amount of compression exerted on the pulp gradually decreases as the material rises in the press so that it reaches the discharge orifice at the top of the press at a consistency of about 30% or higher.

A series of stationary horizontal breaker bars projecting radially into the pressing area from the inner surface of the press cylinder prevent pulp from merely rotating with the screw. The outer pressure cone, which surrounds the spindle, rotates with it. This prevents the rolling action between pulp fibers which would otherwise form hard bundles or knots that have hindered the success of high



KEYS TO SUCCESS of high density groundwood bleaching at St. Regis are (1) FMC presses, (2) Vertiflex chemical mixer and (3) flared design of bleach tower.



EVEN MIXING of chemicals and high density pulp are accomplished by pyramid teeth in Vertiflex mixer.

density bleaching. The amount of downward pressure exerted on the pulp by this cone, which is pneumatically regulated, is the key factor in controlling final pulp density. Cone pressure is decreased as torque in the screw increases and vice versa.

As pulp travels upwards in the press and is compressed, the white water squeezed out of it passes out through the screen and then downward into a collecting pan at the bottom of the press. This counterflow design flows the water away from the drier pulp so that it is not exposed to resaturation. From here the white water is recirculated and used for dilution ahead of the vacuum thickener.

This counterflow design also avoids the possibility of product-channeling. Instead a press cake of high density groundwood pulp is formed at the top of the cylinder and continuously discharged into the next stage of the process.

Uniform density of the discharged pulp is maintained by a hydraulically-controlled density regulating device.

Tremendous pressures are not needed for pressing or dewatering the pulp; instead a minimum of cone pressure does the work. A torque of 3,000 lbs. is used to push the stock up in the feeder. A 10,000 lb. press is used with 75 hp motors on the presses; actually only about 5,000 lbs. are used.

Compressed pulp from the presses travels to a 120 rpm Roto-Lift which moves the pulp to a 16 in. horizontal 65 rpm screw conveyor, which carries it to the throat of the Jones 28 in. Vertiflex. Here bleaching liquor is mixed with the pulp, reducing the density to about 25%. No steam is normally required, although provisions have been made for its use. Bleaching temperature is about 110° F.

Bleach solution is added at the throat of the Vertiflex through 10 injection nozzles positioned in a circle about two-thirds of the way from the inside of the outside row of teeth in the stationary discs. Two of the injection ports are for the aforementioned use of steam. A standard coarse tooth disc is used.

Peroxide is added at the rate of approximately 5.5 gpm at 35 psi and steam (when used) at 50 psi. The Vertiflex has proven to be a good unit for mixing chemical solution with fibers at the high densities required, says St. Regis.

Saturated pulp discharges from the mixer by centrifugal force directly onto a target hanging vertically from the top center of the Thorne-type tower. This deflects the pulp down, maintaining an apex of the pulp pile in the center of the tower. Bleaching takes place during a retention time of 1.5 to 2 hours, but capacity of the tower was designed to permit retention for three hours at 12%.

Pulp is diluted after bleaching to 8-9% consistency by showers inside the circumference of the bottom of the tower and also from showers on the hub of the scraper. A scraper and screw conveyor move the pulp to a neutralizing tower. The bleach tower is 30 ft. high and has a diameter of 13½ ft. at the top and 15½ ft. at the bottom. This design is credited with eliminating trouble with the high density stock arching in the tower.

The screw conveyors deliver the pulp at about 14% consistency to a tile neutralization chest where it is further diluted to about 3% and pH adjusted to about 5 with SO_2. Flow of SO_2 is controlled by a continuous pH recorder-controller.

Bleach liquor preparation is completely automatic and is controlled from the main panel in the bleach plant. A 5,000 gallon capacity pickled aluminum storage tank is used, located in a separate building adjoining the bleach make-up system.

Sodium peroxide, the only dry chemical used, is metered to an Omega loss-in-weight dry feeder. HO_2 in a 50% solution is metered to this dissolving tank. Magnesium sulfate at the rate of 1 lb./gallon and sodium silicate, 41° Be., are metered from their respective storage tanks with a separate Proportioneer Simplex pump to a homemade cascade mixer.

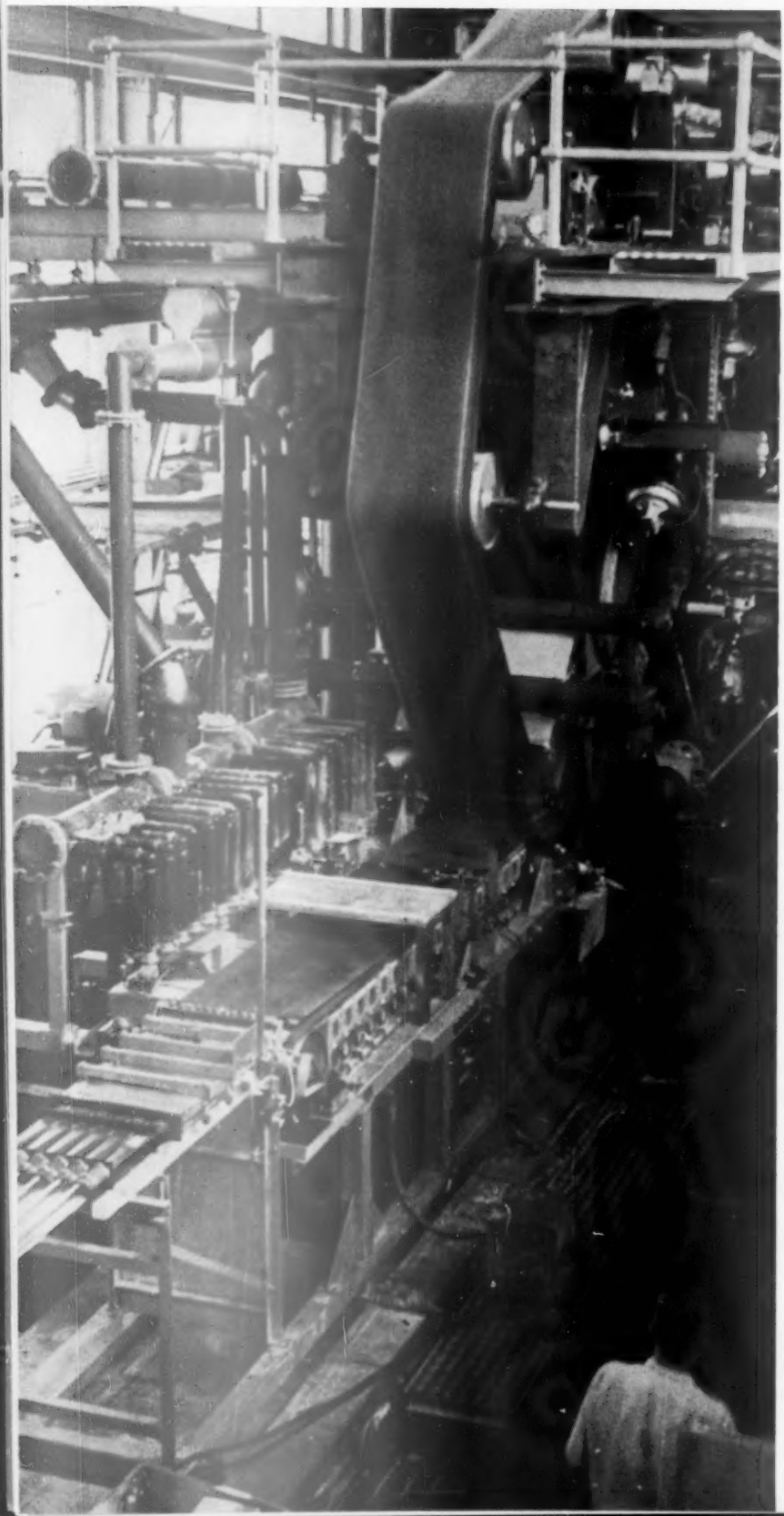
Finished bleach liquor is then pumped to an 8,000 gallon tile lined storage tank. The bleach plant operator fills up the sodium hopper only once a day. An electrode differential level control mounted in the bleach liquor storage tank controls the entire system on a start-stop basis.

Metal ions in the pulp in excessive quantities have presented a problem. Their source was traced to a local condition existing in the pulpwood. St. Regis solved it by using a chelating or sequestering agent, DPTA (diethylenetriaminepentaacetic acid). The DPTA sequesters or deactivates the metal ions which are present at the rate of about 100 ppm in the wood. Without this agent, the HO_2 would decompose and not bleach. Cost is about $1.50/ton. Use of this catalyst also permits St. Regis to extend bleaching time in the retention tower from the normal 3-3½ hours to 6 hours.

PULP & PAPER THANKS . . .
In developing this article, PULP & PAPER is particularly appreciative of the assistance given at St. Regis, Deferiet, by Mel Killian, chief chemist; Bob LaFond, special projects engineer and Herb Jacques, project engineer.

Equipment Notes:
Bleach plant deckers vacuum deckers and washers, stock meters, Impco; *All drive motors,* General Electric; *Sodium peroxide dry feeder,* Omega Machine Co.; *Process piping designed and laid out by* Chemipulp Process, Inc.; *Bleach make-up stainless steel valve,* Alloy Steel Products Co.; *Vertical screw presses* (3-40 tpd), FMC Corp.; *Hydraulic pumps on presses,* Dennison Eng. Div. of American Brake Shoe; *General contractors,* Northeast Constructors; *Building design,* Rouse Engineering; *Electric load centers,* Westinghouse; *Vacuum pumps,* Nash Engineering; *Automatic controls and magnetic flowmeters,* Foxboro; *Press controls,* Taylor Instruments; *Pumps,* Goulds Pumps Inc.; *Regulators,* DeZurik; *Screw conveyors,* Link-Belt Co.; *Tile linings on washers, etc. storage,* Stebbins; *Bleach liquor proportioner,* BIF; *Bleach liquor mixer* (Vertiflex), E. D. Jones Inc.; *Motors, asbestos protected, on presses,* U. S. Motors.

From the Springdale Laboratories comes



Lightweight magazine papers of uniform basis weight are made at high speeds on a pilot machine using modified tissue approach at Time's Springdale laboratory

By MAURICE R. CASTAGNE,
Associate Editor

Springdale, Conn. TIME INC. is making uniform, lighter weight stock on a pilot paper machine developed in its laboratories here under a program to reduce its soaring postal costs. (See photo, left).

Time Inc. currently has 10 million subscribers, to whom it mails 493 million copies of its six magazines a year. Annual mailing costs aren't known, but it is probably safe to describe them as staggering.

Thus, reducing basis weight, while maintaining uniformity, has become a major problem to Time. Uniformity is necessary to achieve good printing quality.

Explains William J. Carter, general

THE TIME MACHINE has 22 six-in. suction boxes. There are no table rolls. Stock is brought to slice through multi-pipe arrangement at left.

. . . THE TIME MACHINE

manager of Time Inc's. research laboratories here at Springdale, Conn.: "About 1954, paper manufacturing had improved to the extent that with conventional roll coating you could get a good 40-lb. sheet that had the quality necessary for four color printing. But only constant attention to manufacturing control had made this possible. We thought we were pretty much to the end of the road with existing equipment for forming and coating paper. That is why we wanted to seek new technology to improve the quality of lightweight paper, while at the same time setting new goals for weight reduction. The latter could result in transportation savings and reduced raw material costs only after we had produced a quality sheet tailored to our printing specifications."

In 1954, 40 lb. was the best lighter weight sheet that was available. *Life* magazine, which had been 45 lb. up to that time, was reduced to 40 lb. At the same time, the decision was made to increase the weight of stock used in *Time* magazine (some of which was 37 lb.) to 40 lb. It had been found that the 37lb. stock lacked bulk and opacity.

Next big decision was where to go from 40 lb. After a study of postal and paper-manufacturing costs, Time Inc. set its sights on a 30-lb. sheet that would have high uniformity, and bulk, plus good printability and opacity. Actually, a sheet bulkier than the present 40 lb. used by Time was sought. On the basis of facts on hand, Time believed it could make 25-lb. raw stock. That's the weight of the stock that is being formed on its new, experimental 18-in. machine.

The "Time Machine" is a modification of the tissue machine, which freezes the sheet in a very short space (see photo, right). By this approach, Time is able to achieve high speed, uniform stock formation.

Main departures from tradition on the machine are:

- Stock is brought to the slice through a multi-pipe arrangement.
- No air cushion is used.
- Stock flow velocities are so high that they are depended upon to blend the stock.
- Stock is thrust through the full nozzle inlet onto the wire where stock formation is almost instantly set or frozen.

The machine uses 22 six-inch oscillating Teflon-covered suction boxes in a flat table array, which accomplishes the instant freeze. There are no table rolls. A special blend of Teflon is used on these boxes and results have been "excellent," says Springdale.

The entire wet end moves as a unit to the press pickup roll for experimental convenience. There is no suction couch roll. Four bank needle squirts are used and these are controlled by the operator from the reel. A special Appleton 8064 wire is used. A pair of 160-psi air knives cleans the return wire.

The pilot machine trims about 18 in. It is driven by a Louis Allis 150-hp variable frequency generator. The indrives are synchronous motors and feed through the differential to the machine. There is also a 100-hp dc helper drive. The drive is geared for speeds up to 4,000 fpm. Springdale likes the electrical lineshaft because it can be moved to wherever it is needed and plugged in. The draw stays locked up to 75% overload.

Papers have been produced experimentally at speeds up to 3,200 fpm without two-sidedness and with uniform formation.

The press section has been designed with sufficient flexibility to allow different configurations and to keep power and costs down. And, of course, to effect better drying. The press section achieves about 6% higher drying; the sheet is about 40-42% dry after it leaves the third press.

Suction wringer rolls have been eliminated. All felts are showered continuously. An air knife on each press blows the water off the roll surface and also out of the press roll holes.

A variety of vacuum pumps was selected from different manufacturers to compare operations. There are vacuum pumps on each press roll. The blower type, says Springdale, is smaller and more efficient, but harder to silence. There are 9 in. of vacuum on the vacuum pickup, 10 in. on the first press, 8 in. on the second and 10 in. on the third.

A beta gauge in the press section can be positioned at any location over the web by the press operator.

INSTANT FREEZE of sheet formation is dramatically caught by camera as stock is thrust through full nozzle inlet onto wire.

. . . THE TIME MACHINE

The pulp stock system has been designed to run the pilot machine continuously at 3,000 fpm. Baled pulp is dispersed in an Impco Solvo P-3 pulper and is pumped to an 8,000-gal. storage tank equipped with agitators. Kraft is refined in a Jones 125-hp jordan with lava plug and Bidwell shell, and it has proven very satisfactory. Groundwood is blended with kraft in an 8,000-gal. tank. There are eight Lithcote-lined tanks, each with 8,000 gal. capacity.

The broke system depends upon broke to act as its own conveyor. Two broke chutes are used: one for pulp off the wire and pickup roll; the second off the reel and third press. No conveyors are used.

Two wet labs are used for close control of blends. Handsheets are made of lab blends and of actual pilot plant blends and compared. All handsheets are made on the same basis weight: 25 lb./3,300 sq. ft. (25x38/-500).

A new 18-in. off-machine laboratory coater is now being installed at Springdale. It is designed for 4,000-fpm coating speeds and will use Springdale's own blade design for twin blade or double coating.

When Time launched its program to build a new kind of machine, its researchers asked a question that no one else was asking: "If the tissue manufacturers have learned how to run their machines at 2,500 to 3,000 fpm with uniform formation, why can't makers of publication papers learn how?"

At the time, there was a lot of talk in the industry about pressure headboxes, grooved table rolls and suction rolls, but there were also serious doubts that the Fourdrinier or pressure headbox could do the job Time wanted done.

The laboratory here, which had been concentrating on developing improvements in printing presses, printing plates and inks, actually did not want to diversify into papermaking research. Time's philosophy with regard to research is that it will engage in it only in those areas in which others aren't working or can't be induced to work. But finally, after restudying their findings, the Springdale research people recommended to Time management that they conduct their own research.

Currently, more than $2 million a year is spent here at Springdale for research; 40% of this is for research of papermaking. Here, since 1945, Time Inc. has invested more than $25 million in new and improved technology of printing and papermaking.

The first step was to explore what was being done in the paper industry to make a better sheet and to improve the economics of coated paper manufacturing. Next, following its established procedure for project planning, the economic aspects of the problem were examined through the cooperation of a supplier.

They broke the problem down this way: The Fourdrinier wire, fed by a conventional headbox, they felt, probably couldn't produce a uniform enough emission of stock. Formation of stock on the wire doesn't yield a uniform enough sheet. Therefore, they concluded, a substitute means must be sought to form this rawstock.

Several approaches were tried to attain the end results and the speed needed. There was one big problem and that was to make sure that, if at all possible, changes should be compatible with existing papermaking machinery.

Comments Springdale's Technical Director Paul J. Thoma, "No papermaker in his right mind will simply throw away the hardware he has. It's not practical to introduce new developments faster than the industry can digest them. After considerable work we have come up with some designs which are not only suitable for an entirely new machine construction, but also are applicable to commercial machines now in operation."

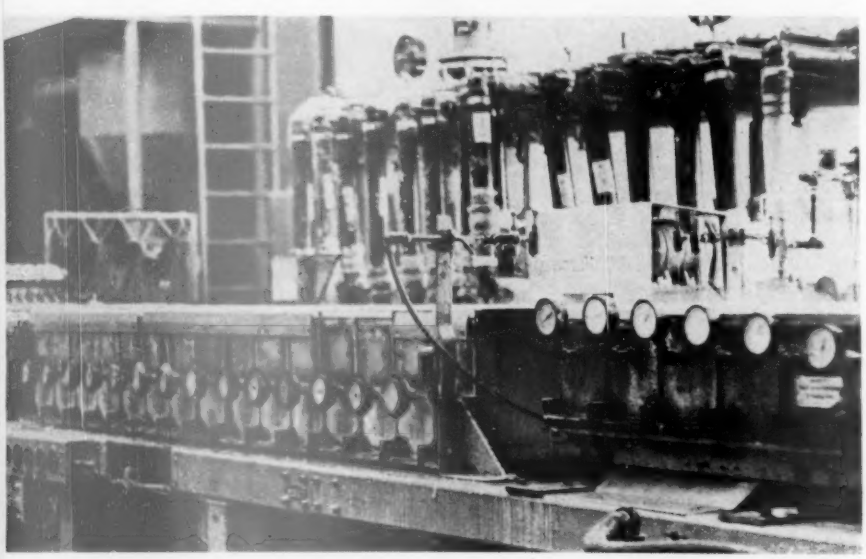
By the end of this year, Springdale believes, it will have enough answers to go part way down the road. At least some of the answers to improving uniformity of formation on the Fourdrinier are within reach. Success, too, has been achieved in bringing the stock up to the slice in uniform condition.

Not enough is known yet about what happens to the stock flow upstream of the slice. Control of consistent uniformity, elimination of pulsation in the flowing stock are some examples of problems in this area.

Second big problem area is how to get the specified sheet with only 5 lbs. of coating. Time wants a thin uniform layer of coating. Springdale had been in the trailing blade development in 1953 and 1954, but got out of it because others were working in the field. But it continued to study the economic factors in blade coating: costs, downtime, production efficiency. Springdale also got into a real problem of on-machine versus off-machine coating.

To get the product it wants, Springdale has had to get back into the coating field. The whole coating area is now being re-investigated. Springdale is now looking at all methods again and is studying the literature and technology of the entire field.

In a coated sheet, Time wants maximum efficiency from a lightweight coating without loss of any of the qualities it needs. Important are smoothness, ink receptivity and ink gloss holdout in the coating itself.



UNIFORM SHEET can be made on this machine at speeds higher than 3,000 fpm. Flat table array of suction boxes shown here accomplish instant freeze of formation.

THOMA

TAYLOR

ROBINSON

MEANS

LATIMER

Springdale laboratory's papermaking research team

As MANY PAPERMAKERS have found out, the staff of Time Inc.'s Springdale laboratory is always very cooperative, and is also an extremely stimulating group with which to talk. Their wholehearted cooperation in the preparation of this story is gratefully acknowledged by PULP & PAPER. Shown above are the people with whom Associate Editor Castagne worked closely.

Paul J. Thoma, technical director: ***". . . If the tissue manufacturers have learned to run their machines at 2,500 to 3,000 fpm and at very uniform formation . . . why can't we do this on coated book paper?"***

Mr. Thoma has a B.S. and M.S. from U. of Illinois; became a v.i.p. of Kelly Co. (printing inks) in 1938; ran Time's Kalamazoo (Mich.) coating mill in the late 1940s; has been a key figure in Springdale for a dozen years. He's one of the outstanding leaders in R&D in printing and paper.

David H. Taylor, assistant director: ***". . . Our long-term interest is to get rid of two-sidedness . . . You can't control the top of the sheet when you drain from the bottom."***

Mr. Taylor, with an A.B. from Dartmouth and an M.S. from Columbia, formerly was an accountant with Haskins & Sells. He joined Springdale at its beginning as business manager, now heads up economics and planning.

David E. Robinson, design engineer: ***"Uniformity of formation is within our reach. We will be able to bring stock up to the wire at 4,000 fpm in a uniform condition."***

Mr. Robinson has a B.A. from U. of British Columbia, came from Quebec North Shore Paper Co. to join Springdale in 1955. He specializes in wet end engineering.

John A. Means, engineer: ***"We are now making a sheet where pulsing isn't too obvious. We are looking for a final operation that doesn't rob bulk, opacity and showthrough."***

Mr. Means, with a B.S. and B.S. Me. from U. of Wisconsin, joined Springdale in 1957 Previously he had been with KVP and Beloit Iron Works. He has been responsible for the design of the Springdale wet press and laboratory coater.

Kenneth B. Latimer, head of paper and coating department: ***". . . The factor of safety is eliminated when you are down to 2½ lbs. coating/side."***

Mr. Latimer has a B.A. and M.S. from U. of Michigan and after broad experience in printing, paper and coating, joined Springdale in 1954 and has become an important figure in laboratory management.

The 5-lb. coating job can be done, says Mr. Thoma, with 2½ lbs. of coating per side, if it is done right and if the rawstock is right. Control and knowing what is wanted step by step are the real problems, he stresses. The margin of error is practically zero when you are down to this light a coated sheet, he adds.

Springdale doesn't believe that there is any magic or "black box" for coating. It does say there are several coating tools now available that may be able to do the job by linking several different coating components. They believe there is enough interest in the industry today to make this work.

In blade coating, Springdale wants simplicity of operation, a blade that is easy to change with as few parts as possible and that is as foolproof as possible. Time wants to be able to change or vary the coat weight by blade controls without having to change solids or viscosity.

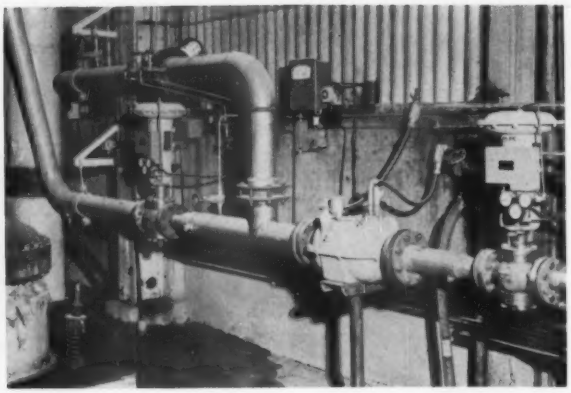
Uniformity is the key to Time's problem. It is needed for strength. It is needed for lightweight coating. Time believes it can come close to achieving uniformity with modified conventional Fourdrinier equipment and by uniformly bringing the stock to the wire. As yet, stock throw up to the Fourdrinier is still a problem; therefore, a certain amount of two-sidedness will persist.

"In the long range," explains Mr. Thoma, "everything we have seen to date convinces us that the Fourdrinier as we know it has too much instability. You can't control the top of the sheet when you drain from the bottom. Our long term interest is to get rid of two-sidedness."

"We have tried to set down our reasons for getting into papermaking research and development," Mr. Thoma concludes "We try to sound practical and hope we are practical. You just can't take a paper machine out of production for some new piece of equipment on somebody's whims. We are not in research to make money from it or to make equipment. Our primary interest is in improving our products, which are magazines."

Because Time Inc. is a major producer as well as consumer of paper, it has spent large sums for many years in research on paper, ink, printing plates, etc. This is why papermakers come to Springdale to exchange ideas with Time's research staff. Some papermakers say the "Time machine" may drastically change the tempo of papermaking developments in the next two years. ■

Two-stage Cook Yields New Pulps



BLENDER for cooking liquors is part of additional equipment of same type used in standard MgO process, installed by Weyerhaeuser for two-stage processes.

Fast beating and high opacity pulps are produced by Weyerhaeuser using newly modified magnesium sulfite pulping processes

By LOUIS H. BLACKERBY, Western Editor

Cosmopolis, Wash.

DESPITE INDICATIONS that two-stage MgO pulping is either impractical, or impossible, successful processes for cooking with acids above 5pH without precipitation of magnesium sulfite have been developed here by Weyerhaeuser Co. In fact, facilities installed at the firm's newest MgO pulp mill enable it to devote its entire production to pulps made by either or both of the two-stage processes. Current manufacture, however, continues to be chiefly confined to pulp made by the conventional MgO process.

Characteristics of the new pulps considerably extend the range of magnesia-base pulp qualities.

One of the two-stage pulps is fast beating and develops high-strength values rapidly; the other remains free with beating and exhibits high-strength and opacity values. According to Russell J. LeRoux, manager of manufacturing, Weyerhaeuser's pulp and paperboard division, these characteristics extend the appropriate application of MgO pulps to a broad range of high-grade fine paper groups.

The unofficial terminology used by Weyerhaeuser to designate each of these three MgO pulps effectively differentiates any one from the others. Standard bleached sulfite is conventional acid pulp produced by the single-cook process jointly developed by Weyerhaeuser, Howard Smith Paper Mills Ltd. and Babcock & Wilcox Co. Of the new processes, one is FB (fast beating) bleached sulfite, the other, HO (high opacity) bleached sulfite.

Although the main development work on both processes was carried out by Weyerhaeuser at its Longview research department, the original HO type pulping concept and early development are attributed to Howard Smith Paper Mills. The FB type pulping process was conceived and developed by Weyerhaeuser. Dr. S. C. McKee, research associate of the Longview research department, foresaw the possibilities of this processing approach and has been intimately associated with developing both of the two-stage processes. Patent applications have been made for each process.

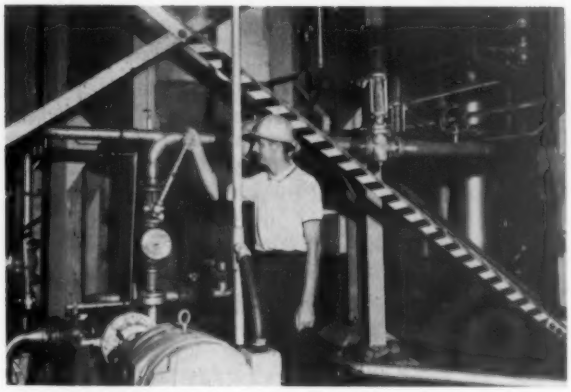
FB pulp's high hemicellulose content provides characteristics capable of producing paper of high density and high strength more rapidly than are obtained from paper made from conventional acid sulfite pulp. The rapid hydration characteristics of FB pulp make it particularly suitable for use where refining—capacity, time, cost—is a determining factor. Compared to conventional acid sulfite pulp, the burst factor of FB is significantly higher in the high-freeness range. Power requirements are but 60-70% of those for conventional MgO and the burst value 30% higher in refining to freeness of 800 cc Schopper Riegler with a plug-type refiner.

Characteristics of FB pulp make it, with sufficient beating, particularly valuable for the manufacture of papers in which transparency and high density are important factors, or for use where refining capacity is limited and there is the need for developing pulp strength characteristics with a minimum amount of development power expenditure.

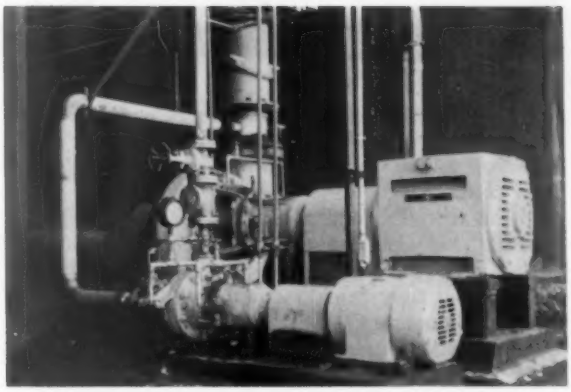
At the other end of the spectrum, the HO process produces an alpha-type pulp of high brightness and opacity. Burst and tear strengths are reported to be higher than are obtained from conventional sulfite. HO retains the favorable formation characteristics of sulfite pulps. Refining requires somewhat more power than for conventional acid pulp. Mills now using conventional alpha-type pulp may find HO particularly adapted to their needs, particularly those mills producing specialties calling for good strength and opacity properties. The alpha cellulose content of HO approximates 90%.

The use of HO pulp in the manufacture of rag-content papers appears to hold special promise, according to Mr. LeRoux. This pulp has various qualities desirable for usage in these papers, including the ability to hold up during the additional beating required for rag-content papers.

Both of the two-stage pulps have been produced on full mill scale in Weyerhaeuser's pulp and paper board division plant at Cosmopolis. This 400 tpd bleached pulp plant



SYSTEM FOR STORING MgO (in stainless tank directly behind John Smith, pulp mill shift supt.) for ultimate use in mill's seven digesters.



PUMPS FOR CHARGING digesters with first-stage acid; the large pump is used to fill digester; small one supplies pressure.

went into production early in 1957 as the company's second MgO mill.

Modifications to extend production versatility to include both two-stage processes involved installing additional components at the digester building. These were either similar to or duplicates of the original mill equipment. Additions principally concerned "more of the same."

No changes were made in the B&W recovery system. This recovery process is suitable for both two-stage processes and the standard MgO process, according to Earl Bailey, assistant technical director at Cosmopolis. He has been closely associated with the development and production phases.

"The recovery process is not only suited to two-stage pulping but the installed furnace capacity is adequate to handle output of more than the present digesters," states Mr. Bailey.

The FB process involves using liquor of 5.2-6.0 pH at 150° C. for the initial cook. This liquor is removed on completion of the first stage and replaced with liquor of 1.8 pH for second-stage cooking at 135° C. HO pulp has an initial cook using 3.8-4.0 pH liquor at 166° C. At conclusion of the first stage the liquor is neutralized in place to 6.0-6.5 pH for second-stage cooking at 170° C. The standard MgO process involves cooking at 135-140° C. with liquor of 1.5-1.8 pH. ■

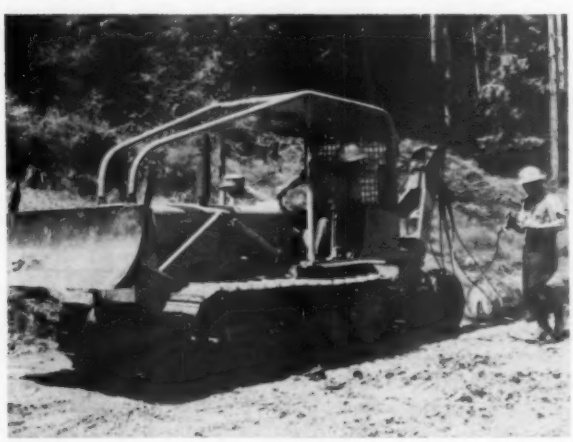
HOW TO DO IT

Problem: Logging second-growth thinnings

Solution: A retractable "dolly arch" with a small crawler tractor makes a versatile combination for pulpwood logging (picture, left). The arch rides on a center-mounted, rubber-tired dual wheel and attaches to the rear of the tractor by two vertically hinged connections, one at each side.

This equipment is used by Oren Weed, contractor for logging second-growth timber in thinning operations at Crown Zellerbach Corp.'s E. P. Stamm Tree Farm near Vernonia, Ore. He is able to yard logs from either side without tipping the arch. In transporting a turn of logs to the landing, the load weight is borne by the arch. This results in better mobility and less friction than flat-drag skidding.

When using the tractor for jobs in which the arch is an encumbrance, the arch can be "folded" vertically against the aft end of the tractor (picture, right). It is elevated to this retracted position by applying power with the winch line, which otherwise operates through fairlead of the arch.



Summaries of some key papers

The 16th TAPPI Engineering Conference in Washington, D.C., was described by its chairman, M. J. Osborne, as having been "even more serious than those of the past."

Of the attitude of the more than 800 engineers who attended, Mr. Osborne said: "They came to the conference with the purpose of increasing their knowledge so that they can do a better job more cheaply through engineering."

The chairman, who is chief engineer at Bowaters Southern Paper Corp.'s Calhoun (Tenn.) mill, listed as highlights of the meeting a panel discussion on computers, a session on sanitary engineering, and a discussion of fluid mechanics. He added, however, that all sessions were rewarding and informative.

There was abundant evidence to support Mr. Osborne's conclusion that engineers considered the conference of great value. Attendance at sessions was high. Engineers appeared intent on gleaning from them as much information as they could to take back to their own mills. Panel discussions were marked by lively exchanges of views and participation by audience members who fired questions at the dais.

More than 75 technical papers were presented. They dealt with every important phase of paper and pulp engineering.

PULP & PAPER here publishes summaries of 9 papers. While the selection includes papers that are considered to be of more than ordinary significance, it is not intended as a compendium of all the most important papers delivered at the meeting. Many papers not abstracted are felt to rank in significance with those treated. But space does not permit coverage of all. Contents of other papers will be reported later.

Current Status of Alkaline Digester Corrosion as Reported by Regional Digester Group, Z. S. Blanchard, division manager, Portland Overlay Welding Div., Chicago Bridge & Iron Co., and H. M. Canavan, Mutual Boiler and Machinery Insurance.

Covers experiences of 31 mills with 290 carbon steel, stainless and Inconel clad or lined digesters.

Significant findings: overlay welding of carbon steel digesters with stainless has increased; average current corrosion rate for 247 carbon steel digesters ranged from 3.2 to 96.0 mils/year, compared with 3.4 to 114.7 mils/year in 1959; average corrosion rate in the critical area ranged from 3.8 to 263.6 mils/year, compared with 14.4 to 202.0 mils in 1959.

Some conclusions: the critical area has changed to the middle shell; average current corrosion rate for carbon steel digesters, based on weighted average, has decreased from 36.2 mils to 23.0 mils/year; average corrosion rate in the critical area of carbon steel digesters has decreased from 81.5 to 43.9 mils/year; liquor charging is still the leading cause for corrosion in the critical area.

Report of Stainless Steel Overlay Welding Experience in Digesters, Paul C. Bobo, division engineer, The Mead Corp., and Z. S. Blanchard.

Installation at The Mead Corp's Kingsport division consists of six soda digesters, which went into operation in 1949. These digesters had averaged 1,025 cooks/year until overlaying. Cooking pressure had averaged 95 psig at 335 F. Wood has been mostly mixed hardwoods with oak predominant.

First overlay work began in 1958. Inspections show majority of overlay welded areas are in good condition with exception of three small areas. A nominal amount of repair welding of pin holes and/or voids has been required.

Economic Considerations in the Design of Plant Structures, S. D. Sprite Jr. and E. E. Townsend, Bowaters Engineering & Development, Inc.

A report on three items that have reduced the building costs of Bowaters process plants: fly ash in concrete, framing system for hardboard mills, prestressed concrete posts.

Advantages of fly ash concrete are increased economy, improved workability, greater durability, resistance to hydrogen sulfide, less water penetration, lower heat of hydration, equivalent 28-day strength.

A framing system was used in the company's Catawba (S.C.) hardboard mill, because operations required clear bays of 60 ft. by 35 ft. and a structure was needed that has a minimum of horizontal surfaces. The building also was the most economical of several schemes studied.

Prestressed posts were used instead of cheaper timber posts because they aren't subject to deterioration and they permit repeated use of forms.

Development of Defibrator Continuous Digesters, Uno Lowgren, American Defibrator, Inc.

Over the years several improvements have been made in the original equipment and entirely new designs have been developed. Among them: feeding equipment, enlargement of the horizontal steaming vessel, vertical digester, modifications of the defibrator pulping unit.

The original plunger feeder was early replaced by the screw feeder, which has fewer moving parts, provides continuous feed, and has a high feeding capacity. Also used is the rotary feeder, power requirements of which are eight to ten times lower than those of the screw feeder.

Enlargement of the horizontal steaming vessel extends steaming time. One application of the horizontal tube is in continuous digestion of bagasse and straw for chemical pulps.

One of the most important steps in vertical digester presoaking involves impregnation of chips, which expand and soak up the liquor in the impregnation vessel in the manner of a sponge. Further developments in the chip-soaking and digester system include impregnation under steam pressure.

The new L defibrator is designed with its housing split horizontally for complete access to discs and segments. It's also equipped with hydraulic controls and 36-in. discs.

Water Removal by High Velocity Air Hoods, J. A. Means, Time Inc.

Several high-velocity dryer hood installations were studied using a technique not requiring sheet samples. Drying rates on paper and coating were compared with velocities, temperatures and btu inputs.

Of 16 hoods studied, only eight had nozzle velocities exceeding 10,000 fpm. Only these should be considered high-velocity dryers. Their drying rates are from twice to six times those of standard drum dryers. Of the eight studied, only two were properly located in the dryer sections, and, of these, only one had a really effective design. Three coating dryers are producing acceptable results and five are

given at engineering meeting

most definitely not remotely approaching respectable performance. Four installations of those studied have come up to expectations of the mills. It is obvious that properly engineered installations of high-velocity air hoods, properly operated, can be an effective tool for the papermaker.

High-velocity air is not the answer to drying problems, heavy coat weights, coatings with low solids contents and sheets with strength sufficient to withstand impingement, are applications where high velocity air may be unsatisfactory.

Specifications of dryers should include terms that are used to describe the dryer and its performance. These terms include air quantities, velocities and drying rates.

The Modern Continuous Digester, William Herbert, Chief Engineer, The Black-Clawson Co., Pandia Div.

Six new features have been incorporated into the modern design continuous digester. They are: screw feeder design for all types of applications; twin drum meter for metering agricultural fibers; rotary valve employed both as a feeding and a discharge mechanism; rotary valve feeder that is also a preimpregnating unit; high volume recirculating liquor system; rotating impeller discharger with integral drive and renewable wear sleeve.

An Improved Potomac River—A Case History of a Major Waste Treatment Program, G. M. Griffith, maintenance superintendent, West Virginia Pulp & Paper Co., Luke, Md.

A modified activated sludge process, of "fairly conventional design," is now being used by West Virginia to treat its pulp mill waste, from Luke. The system, operated by the Upper Potomac River Commission at Westernport, Md., is also used to dispose of the sewage of three nearby communities. Started up last fall, the system was designed to handle 21 million gal. of effluent a day. Mr. Griffith said it "is meeting all design expectations, though design flow has not yet been achieved." Designers were Hazen & Sawyer, and Gibbs & Hill, consulting engineers.

New Bio-Treatment Design and Performance—Pulp and Paper Waste, Roy F. Weston, Roy F. Weston Inc., and W. D. Rice, research director, P. H. Glatfelter Co.

Tests confirm that contact stabilization activated sludge treatment is the most economical for Glatfelter.

Full operation began March 15, and by March 22, mixed liquor suspended solids were 1,400 ppm. By April 14, they had risen to 6,000 ppm. All treatment data is within expected operating ranges, except where low dissolved oxygen content interfered with treatment efficiency.

Only limited data are available on oxygen transfer rates. On low speed turbine operation, 3.7 lb. of oxygen water-hp-hour were transferred at 20 C and 0.0 ppm.; at high speeds, 3.1 lb. of oxygen were transferred. Relative oxygen transfer is not available; therefore, it is possible that actual transfer rates for standard conditions may be higher than those above.

Clarifiers are providing an effluent of lower suspended solids content than was predicted. Return sludge concentrate has been as high as 3.5%.

Relatively high BOD removal was obtained despite a loss of 75 tons of dead activated sludge suspended solids in an abnormal acid spill in June. A recent stream survey indicates a satisfactory minimum dissolved oxygen content.

Final effluent color ranged from 200 to 600 ppm, with an average of 318 ppm. Average color removal was approximately 42% in a removal range of 20% to .66%.

A Lagoon System for Treatment of Bleach Plant Effluent, C. S. Huestis, Continental Can Co.

At the Augusta, Ga. bleached board mill of CCC, pollution load runs about 75 lb. of BOD a ton of product. Expected mill production is 120,000 tons/year. Early tests on the Savannah River into which mill wastes would flow, showed residual BOD thirty miles below the mill site would be 1.50 ppm for an 800 tpd operation with no treatment and under draught conditions. This is a low order of concentration only slightly over that of unpolluted streams.

This was no "utopia" however. Dissolved solids and slime levels had to meet specs of the Atomic Energy Commission project twenty miles below the mill site.

Studies showed that slime growths, resulting from high sugar concentrations, would be somewhat counteracted by channel and hydraulic conditions of the river and high stream flows.

There are four lagoons in operation now at the mill. Effluent from a clarifier is discharged into a channel and then evenly distributed into lagoon No. 1 which covers 33 acres and has a max. depth of 4.5 ft. Thickened sludge goes to a series of small lakes on the flood plain below the lagoon area where sludge is drained and stored. Dilution water, used to convey sludge from the clarifier, finds its way to the river through a slough that connects the lakes with a creek. At present, 1 million gals. a day are being discharged to lakes.

Balance of mill effluent goes into the four lagoons. Pond No. 2 is 73 acres and 3.0 max. depth; No. 3 is 35 acres and the same max depth; pond No. 5 is 467 acres and 4.5 max. depth. Retention time is up to 80 days.

The mill uses about 19 million gal. of filtered water a day.

Effluent is distributed as follows: 6 million gal. direct to creek; 1 million gal. underflow at the clarifier; 12 million gal. from clarifier to lagoons; BOD averages for a five month period are: 18 ppm, direct to creek; 290 ppm, underflow to lakes; 290 ppm from clarifier to lagoons.

At the outflow of each pond, ppm readings were: #1–290; #2–270; #3–220; #5–14. Figures indicate about 95% BOD reduction in summer months.

Total amount of BOD reaching river cannot be measured because purification values of Spirit Creek and the slough between the creek and the lakes is not known.

BOD samples are taken bi-monthly at different stations on the river. Average readings May 15–Sept. 30.

Station	*BOD*	*Dissolved Oxygen*
—4.4 miles above outfall	1.8	9.1
—1.0 miles above outfall	1.9	8.9
mouth of Spirit Creek	23.0	3.9
1.0 miles below outfall	1.7	8.7
5.0 miles below outfall	1.2	8.3
12 miles below outfall	0.8	7.8
20 miles below outfall	0.9	7.8
24 miles below outfall	0.7	7.9

Augusta city sewage accounts for BOD increase between station 1 and 2. After a year of operation there has been no appreciable increase in discharges. An Institute of Paper Chemistry report is taken yearly on effluent effects to biological life in the river. This summer's preliminary report shows no change from previous studies. ■

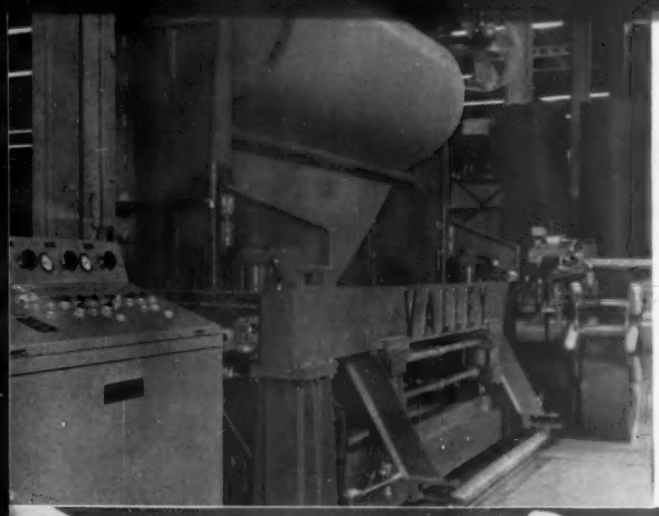
ideas and news:

Open motor shrugs off everything but work: This 5-hp SUPER-SEAL motor performs with unfailing dependability . . . even though covered with a foamy pulp mixture. Twice a day, it gets cleaned — with a hose. POXEAL insulation resists moisture, dust and most contaminants . . . enabled this open motor to replace a TEFC motor that had to be frequently rewound.

Control centers cut costs: You save space, simplify wiring and reduce inspection and maintenance expenses with new Allis-Chalmers low-voltage motor control centers. Plug-in terminal blocks and drawout construction cut inspection time by making it quick and easy to withdraw or remove control units. Pushbuttons and pilot lights are mounted on the removable frames to eliminate failures common with hinged wiring. Special connectors make it impossible for bus connections to loosen. Extra-heavy bus bracing makes additional bracing unnecessary when you add capacity.

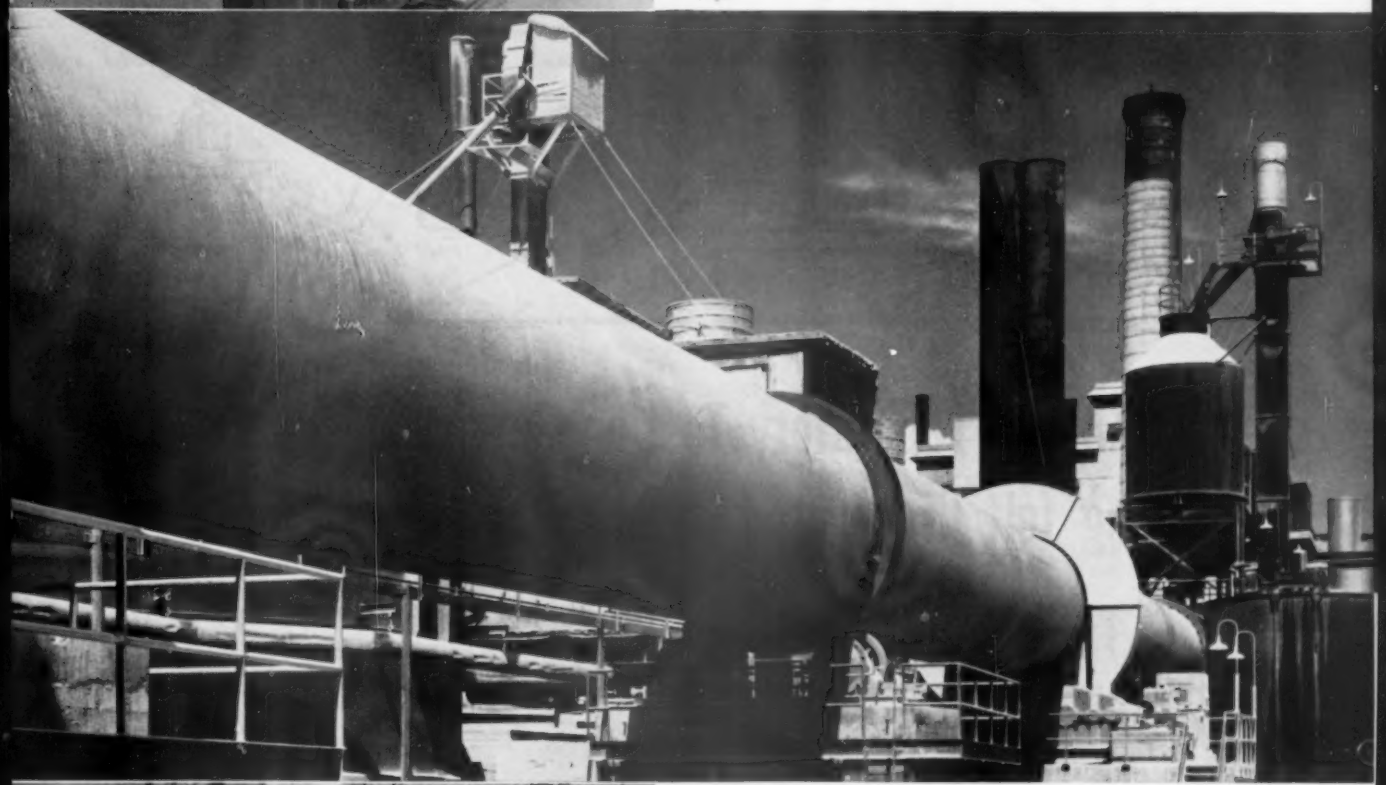
Which of these productive ideas could be working for you?

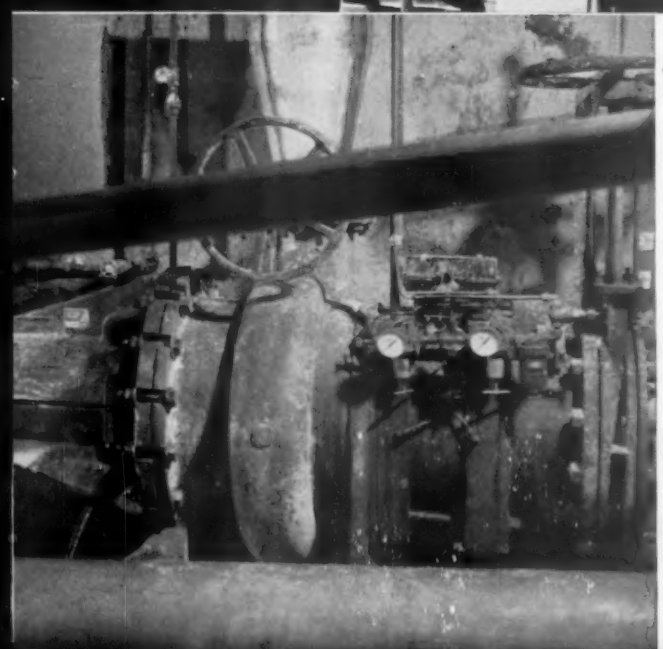
An open motor that shrugs off a soaking. A system that wraps rolls automatically. A pump that instantly matches flow to demand. These examples demonstrate the extra value that is a standard with A-C . . . the greater efficiency and the added productivity which are yours when you buy A-C products, systems and services. Call your Allis-Chalmers representative for details on A-C "worth-more" features. Or write Allis-Chalmers, Industries Group, 903 South 70th Street, Milwaukee 1, Wisconsin.



New "pushbutton" system wraps a roll-a-minute: Valley Iron Works Corporation (an A-C affiliate) has developed an automatic system that can wrap more than 60 rolls an hour. It cuts wrapping paper to proper size, applies it to the roll, and crimps the ends for application of headers. The system can handle rolls of varying sizes in succession — face lengths of 7 to 112 inches, diameters from 15 to 42 inches — other sizes are available.

This 275-ft "oven" bakes a batch of savings: This giant Allis-Chalmers rotary kiln gulps in huge quantities of waste lime sludge . . . converts it into usable lime of uniform high quality. Because of a unique feeding system, this unit can process both sludge and raw limestone (if needed) simultaneously.





***ACAP* pump regulates flow instantly** . . . without valves or varying pump speed. Proven ACAP (Adjustable Capacity, Adjustable Pressure) principle with internal pneumatic control automatically matches flow to demand. Regulation of flow through changing impeller clearances eliminates binding, plugging, saves power, allows systems to operate at high efficiency regardless of demand.

ALLIS-CHALMERS PRODUCTS FOR THE PAPER INDUSTRY: Look to Allis-Chalmers for compressors; controls; earth-moving equipment; industrial systems; lift trucks; motors; papermaking machinery; pumps; rectifiers; electrical generation and distribution equipment; tractors; transformers; unit substations; valves; water-conditioning equipment. A-1544

ALLIS-CHALMERS

ORISKANY'S Laboratory Testing Service helps you prolong felt life...produce better paper products

In our laboratory at Oriskany, we have designed special equipment to test cross strips of your felt and determine whether your press rolls are causing uneven wear. Our technicians can check for bacterial damage or chemical deterioration and recommend one of our exclusive treatments to combat unusual conditions. Each special felt design is subjected to careful tests for finish, drainage and fiber strength.

If you have an unusual felt problem, one of our competent Service Engineers will visit your mill and make a thorough investigation. He can often make 'on-the-spot' recommendations that will correct the condition, or he will report his findings to our technical staff. Their combined experience is at your service to help you produce better paper products . . . at lower cost.

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Guide to Outside Chip Storage

Four West Coast mills answer more than 50 most-asked questions

BEFORE EMBARKING on its new $2.7 million outside chip storage operations at Winslow, Maine, Scott Paper Co. decided to profit by the experience of other mills who are using this system. It assigned D. W. Honza and L. A. Smith to study outside chip handling operations of four West Coast mills. They were accompanied by Jack Lundeen, of Rader Pneumatics Inc., Portland, Ore., and the results of their study were tabulated, as shown below.

Mill & Location	Georgia Pacific Toledo, Oregon	Longview Fibre Longview, Washington	Weyerhaeuser Springfield, Oregon	Western Kraft Corp. Albany, Oregon
Type and amount of pulp production	600 tons/day—kraft	1,200 tpd—bleached and unbleached kraft	400 tpd—kraft	
Type and amount of paper produced	Kraft & liner	Liner to specialties	Liner 1 machine—146 in. trip; 26#-76#	Linerboard
Chips—Purchased	100%	100%	5% purchased; 60% local mill	
Mfg. at mill	—	—	35% other company mills	100%
Chip Piles:				
Material used for base	Chips—recommend black top	Black top—did use sand and chips	Chips	Chips—did use hog fuel
Moisture change in pile	No change	Moisture seeps down from top of pile	After top, relatively constant	After top, 4 ft. to 5 ft. relatively constant
Heat generation in pile	Some, but very slight	None—4 ft. from top of pile is hottest. Same temperature as when put in pile at center	None	None
How often inventory is rotated	Some chips 3½ to 4 yrs. old. Recommend annual rotation	Not possible with operation	Not possible with operation	Try for 6 months but difficult with operation Some 4 yrs. old To within 3 ft.
To base or ground	To within 2 ft. to 3 ft.	To base	— —	— —
Chips lost at base of pile	Bottom 2 ft. to 3 ft.	None on black top. 2 ft. to 3 ft. with chip base	Bottom 1 ft. to 2 ft.	Bottom 3 ft.
Effect of high winds on chip pile	None—considerable chip drifting when blowing them to pile in high wind	Little—some trouble controlling chips when blowing them in high wind	None	None after piling—some when piling
Effect of heavy rains on chip pile	None	None-pile sheds rain	None	None
Effect of freezing weather on chip pile	No experience	Snow to pile in Nov. still there in July	No experience	Heat prevents freezing
Size of chip pile	80 M units—200 cu. ft./unit	40 M units pile (2)	45 M tons	30 M units max.
Ground or base treated to prevent deterioration	No	Black top	No	No
Dirt contamination	None	Some from boilers	No	No
How handled	— —	Screens out with sawdust and Centri-Cleaners on bleached grades		
Chip Aging:				
Effect on brightness	No problem on kraft—estimated will bleach out	None	Not noticed	None
Effect on strength	Some mullen loss (Douglas fir)	Some loss after 3 years	Not noticed	No—possible slight amount
Effect on yield	Some yield loss (Douglas fir)	None	Not noticed	Fir none—alder rots quickly
Accounting:				
Problems of controlling inventories	Weight in and out of pile Check annually Some differences occur	Weigh in and out of pile Check annually — experience used in adjusting differences	None—weigh in and out of pile	Weigh in and out of pile Check inventory every six months
Chip inventories stated in	Units—2,400# bone dry chips	Units—2400# bone dry chips	Wet tons	
How are chips to pile measured	Weighed in	Weighed in	Weighed in	Weighed in
How are chips to mill measured	Weighed out of pile	Weighed out of pile	Weighed out of pile	Weighed out of pile

. . . Guide to outside chip storage

These are the four mills whose outside chip facilities are described in this report

WEYERHAEUSER at Springfield, Ore., making 400 tpd of linerboard, uses 40% purchased chips.

Mill & Location	Georgia Pacific Toledo, Oregon	Longview Fibre Longview, Washington	Weyerhaeuser Springfield, Oregon	Western Kraft Corp. Albany, Oregon
Conversion factor used	1 unit=2400# bone dry chips	1 unit=2400# bone dry chips	None—all weight basis	— —
% chip compaction experienced	Varies	Varies	Not noticed	Depends on weight of equipment
How is compaction applied in accounting for inventories:	Currently using 165 cu. ft./unit. Compaction varies 15% to 30% due to pile size, chip moisture, wood specie, etc. Varies from top to bottom of pile. Bottom more dense.	Normal figure—177 cu. ft./unit. Figure approx. .8 of a bone dry unit in 200 cu. ft. of fluffed chips.	Not used—all weight basis	Not used
Comments and Recommendations	Take pile inventories at minimum inventory point. Consider pile variance on annual consumption basis rather than on book vs. actual difference. Smaller % this way—1% nothing to worry about. Never take major adjustment at maximum inventory.	— —	— —	— —
Blowers & Piping:				
Do blower pipes get plugged?	Not with proper operation	Not with proper operation	No	Chips not blown—conveyed to pile and mill
Frequency of plugging	1 to 2/year; 2 at start	— —	— —	— —
Probable cause for plugging	Overloading system	End of discharge pipe covered; "playing" with air pressure	Air leak caused line to fill	— —
Recommendations to prevent plugging	Use bleed port on feeder when starting up with chips in line	In freezing weather, be sure there are no low points in line for condensate to freeze	— —	— —
How are plugs cleared?	Wash line with fire hose	Locate spot and rod out	Wash line with fire hose	— —
Effect of wet chips on blowing & plugging	Wet chips better—less tendency to hang up	In hot weather, wet chips down—also reduces air temperature	None	— —
Amount of condensation in blower pipes	Certain amount recommended	— —	None	— —
Wear rate on: Pipe sections	— —	None noticed to date	No sections replaced to date	— —
Elbows	— —	Starting to replace after 4 years-24 hrs/day service	Some noticed	— —
Feeder	— —	Build up feeder blade every two years; change feeder knives every 3 weeks	Built up rotor once	— —
Techniques of blower operation	Blow lines cleaned before shutting down	Follow mfg.'s instructions	Follow mfr.'s instructions	— —
Can blower pipe valves be switched on run	Not with chips being fed	Not with chips in the line	Yes, with blower running and chips stopped	— —
Air source for blower	Outside	Outside, but feel that warm air in cold weather would help. (See plugging)	Outside	— —
Chip Pile Operations:				
Recommended method to build pile	Build entire area as uniformly as possible (plateau effect) Avoid mountain and valley contour	Build as much as possible with blower; bulldoze only as required	— —	With scoopmobile
% of pile built: with blowers with dozers	40% 60%	Nearly all	100%—level out with dozer	Not used
Reclaiming: stripping vs. trimming	Stripping preferred	— —	— —	Carried
Are portable blower pipes easily relocated	— —	Would rather use dozer	Yes	Not used

LONGVIEW FIBRE CO. is a 1,200 tpd kraft linerboard and specialty mill from 100% chips.

WESTERN KRAFT CORP. uses 100% purchased chips, produces 250 tpd of linerboard.

GEORGIA-PACIFIC PAPER CORP. produces 600 tpd of kraft linerboard from 100% purchased chips.

Mill & Location	Georgia Pacific Toledo, Oregon	Longview Fibre Longview, Washington	Weyerhaeuser Springfield, Oregon	Western Kraft Corp. Albany, Oregon
Estimated time to relocate sections	½ hour per section	— —	— —	— —
Support required for portable sections	None—lay on piles	— —	None	— —
Method of handling portable sections	Use crawler with rear cable winch	— —	With dozer	— —
Should blower motor kick out with pipe full of chips, what is required before starting motor?	Open bleed port on feeder, build up air volume and pressure slowly until pipe is clear	— —	Open bleed port on feeder, build up air volume and pressure slowly until pipe is clear	— —
Personnel safety on piles	Don't work near pipe discharge while blowing	— —	Bulldozer operator must exercise care and good judgement	— —
Bulldozers:				
Does dozer bruise chips?	No	No	No	— —
Tractor make and size	Int. Harvester TD-24	Caterpillar D-6, plus Michigan loader	AC HD-11E	Scoopmobile-wheeled vehicle
Track width	Standard	Standard	Standard	— —
Grousers used	3 in. (High)	¾ in. (Low)	Low	— —
Blade size	5 in. by 11 in. wing sides—own make	Standard-straight blade	Standard-straight blade	— —
Volume of chips moved	— —	50 units/hr.	500 tons/8 hrs.	— —
Push distances	50 ft. to 600 ft.	300 ft., spreading only	200 ft. max.	— —
Would you replace same tractor	Maybe	— —	Yes	Yes
Other equipment recommended	Would prefer crawler type of equal size	Would buy another crawler, but D-6 too small. Would like a D-8	Crawler type	None—doesn't like dozers; claims high maintenance
Maintenance cost—% of original cost	20%/year first 2 years	Practically maintenance free	— —	— —
Safety devices—Fire prevention Guards	None—no problems Air screens to prevent chips from plugging radiators	None Air screens to prevent chips from plugging radiators	None Reversed fan	— —
Method of fueling	Machine to oil house adjacent to pile	Unit to oil house	Unit to fuel supply	Unit to fuel supply
Preventative maintenance program	Daily inspection by operators	Lubrication; check sheet; once a week to garage for check	Daily inspection	None set up
Is spare equipment available?	From woods operation in 8 hrs.	Yes	Not needed in operation	Not needed in operation
Comments:	Tried front mounted cable controls; high maintenance—went to hydraulic. Motor big maintenance item—5,000 to 6,000 hours between overhauls Chips plugging air—big problem; Reversed fans to blow-out First dozer wore out in 3 yrs, at 16 hrs./day Built chip road to fuel house. Any time dozer off, unit must be washed down before going back on pile Recommend nothing smaller than D-8 with fast reverse	Track should go 6 yrs. without repairing Use dozer to spread chips on pile-use; Michigan front end loader with 11-yd. scoop to reclaim to mill. Chips picked up and carried to car unloading area. Use Michigan because operation is on blacktop Rubber-tired vehicles do not compact chips—do not recommend using on piles	New—not old enough to build up a history	Recommended solid base for chips with adequate drainage
Fire Protection for piles	None—No fire hazard; do not insure pile; do not recommend doing so	Fire hydrants around piles with nozzle station on blower pipe towers Have had no fires	None—no hazard	None—no hazard

New Sulfite Recovery Process

- Recovers base from soluble-base acid sulfite pulp using ion exchange system
- Pulp quality and yield produced with recovered cooking acid are said to compare to that prepared with new chemicals
- Engineering studies indicate short payout time and attractive investment return on recovery plant based on ion exchange

By E. W. HOPPER, Consultant, J. F. Pritchard & Co., Kansas City, Mo.

Pittsburgh, Pa. EXTENSIVE USE of soluble base ammonia or sodium acid sulfite cooking liquors is apparently still waiting for a process which will recover the base efficiently, return it in a form suitable for re-use, have a low initial plant cost, and have a reasonably short payout time.[1]

Those acid sulfite mills which have switched to ammonia or sodium base cooking liquors did so in spite of higher costs for the soluble base as compared with calcium. The following figures show what these costs may amount to per ton of air dried pulp on equivalent base concentrations: 300 lbs. limestone, @ $5.00 ton = $.75; 311 lbs. soda ash, @ $38.00 ton = $5.90; 100 lbs. anhydrous ammonia, @ $100.00 ton = $5.00.

It is obvious that the mills using ammonia or sodium were seeking certain advantages in return for higher chemical costs. Those advantages have been reported as (1), Additional species of wood that can be pulped, thereby cutting wood costs 2), Shorter cooking cycles for greater output per digester, and (3) More versatile cooking conditions using high combined, high pH cooks are possible using soluble base cooking liquors. In addition, soluble base cooking liquors have reduced scale formation in indirect heating systems and screens and down time necessitated by scale removal and replacement due to corrosion.

Serious consideration is being given by mill managements to increases in the base content of the acid sulfite cooking liquors to improve quality and yield. The soluble bases lend themselves admirably to these higher concentrations. However, the still higher chemical costs make it imperative to recover as much of the high priced bases as economically possible.

It is probable that additional mills would have switched to ammonia or sodium base if there had been a feasible process to recover the base in usable form.

Recognizing the need for an economical recovery system, the J. F. Pritchard Co., in conjunction with the Ontario Research Foundation, Toronto, Canada and Fraser Cos. Ltd. New Brunswick, Canada, explored the situation.

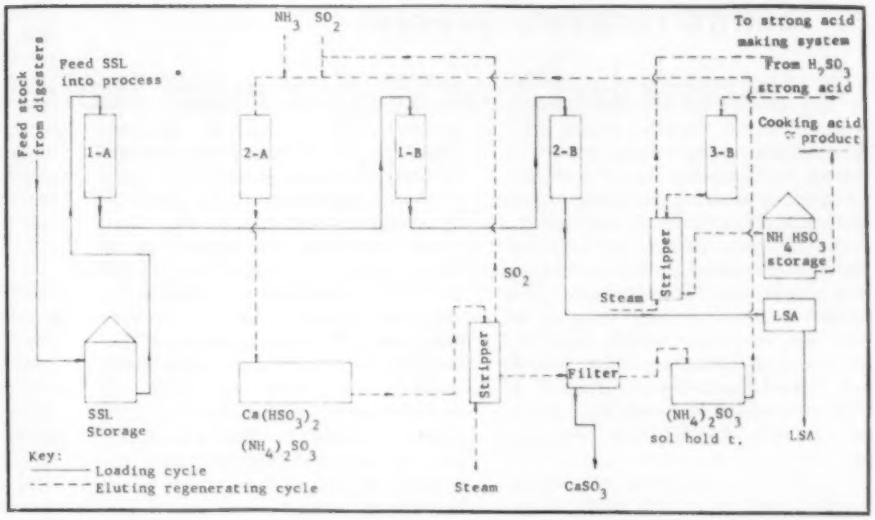
Several approaches to recovery were considered. The first, comparable in many respects to kraft or soda mill recovery systems, would involve evaporation, burning, and chemical treatment. While this is applicable to sodium base, it would not lend itself to ammonia base liquors as the ammonia would dissociate at the furnace temperature. This process would involve costly equipment for evaporation and burning and complicated steps in converting the sulfides produced back to the required sulfites-bisulfites. It would solve the problem of liquor disposal.

A different approach was by absorption of the base cation on an ion exchange resin and recovery of the base from the resin with an SO_2-water solution to produce raw cooking acid. Technical literature has reported on research work, based on ion exchange, to develop feasible methods, apparently with inconclusive results.[1] The decision was made to work out a satisfactory process based on the ion exchange principle.

A simple ion exchange process would require passage of the ammonia or sodium base spent liquor through a resin bed which had been regenerated with acid and converted to the hydrogen form. Ammonia or sodium in the liquor would displace hydrogen from the resin until it was saturated with base cations. The retained liquor would be displaced with water. Ammonia or sodium would be removed from the resin with an SO_2-water solution to produce an ammonia or sodium base raw acid for re-use. The SO_2-water elution would also return the resin to the regenerated hydrogen form ready for another cyclic loading with base from spent liquor.

Efficient recovery of ammonia or sodium from acid sulfite spent liquor is not as simple as outlined above. To secure good affinity for the base cations in the liquor, which may enter the system at pH 3.5 and leave as lignosulfonic acid at pH 0.7, a strongly acidic ion exchange resin must be used.

However, the total SO_2 concentration in cooking acid does not give a solution strong enough to remove the base efficiently from the strongly acidic resin. Therefore, the raw acid produced would be low in base concentration and recovery efficiency would be low. Larger volumes of SO_2 solution would remove additional base and increase recovery efficiency but the increased volume would require evaporation of the excess water as well as stripping of the excess SO_2. A low degree of base removal would give an incompletely regenerated resin with lower capacity. This would reduce the volume of spent liquor which could be treated per cycle. Also, the spent liquor on the next loading cycle would remove some of the retained base cations from the resin and leak excessive base into the



ION EXCHANGE PROCESS for soluble base recovery system. Laboratory studies showed recoveries of ammonia ranged from 68.5% to 82.7% of the ammonia in spent liquor treated.

waste lignosulfonic acid stream.

Another important factor influences an ion exchange system operating on spent sulfite liquor. The two tons of wood required per ton of air dried pulp introduces about 12 pounds of ash which is principally calcium but also contains magnesium, iron, manganese, potassium and sodium. The 2000 gallons of process water required may contain an additional 2 pounds of ash, principally calcium and magnesium. Potassium and sodium in the ash are not a problem in the ion exchange system. In fact, they are recovered and may amount to as much as 2% of the base requirements in the cooking liquor, displacing base otherwise required as makeup.

Most of the laboratory and pilot plant runs were made using spent ammonia base cooking liquor. Therefore, most of the reference is to ammonia recovery.

A 13-14% SO_2 in water solution at 6° C was used in stripping ammonia from the resin in the pilot plant runs. This concentration and temperature gave a sulfurous acid solution which was above the hydrate forming stage and with the relatively high degree of dissociation required to strip the ammonia from the resin efficiently.

To use this ammonia-SO_2-water solution as cooking liquor, it would be necessary to strip the SO_2 in excess of that required as total SO_2. Fortification with ammonia to replace that lost in the blow pit and that leaked through in the lignosulfonic acid would also be required.

The calcium and other divalent cations, magnesium, iron, and manganese cause serious difficulties in this strongly acidic ion exchange system. The resin has a greater affinity for these divalent ions than for the monovalent ammonia, sodium or potassium. The SO_2-water eluting solution is less efficient in removing the divalent cations. Therefore, these cations gradually load the resin and reduce its capacity for absorption from subsequent loading cycles. This acts as a poison to the resin system and must be corrected so that the process is continuously workable.

It was essential that a method be developed to separate the divalent cations from the monovalent ammonia in the ammonia base liquor used, so that divalent cations could be eliminated from the recovery system. The original method proposed by Swenson[2] employed two separate series of strongly acidic resin beds.

In the first, or "A" series, the calcium and other divalent cations were absorbed on resin in the hydrogen form. As the loading cycle continued, ammonia already loaded on the "A" columns was displaced by the incoming calcium from the continued flow of spent liquor and passed with the spent liquor to load on "B" resin beds, also in the hydrogen form.

The loading cycles continued until the "A" and "B" columns were loaded with divalent cations and ammonia respectively. At that point, spent liquor was shifted to another bed in each series which was in the regenerated hydrogen form. The lignosulfonic acid waste which had passed through the system and had the monovalent and divalent cations removed, and had become quite strongly acid with a pH of about 0.7 was recycled back through the "A" columns to remove the divalent cations. This regenerated the "A" columns and returned that resin to the hydrogen form. After a water wash and a water back wash to reclassify the resin, this column was ready for another cycle. The ammonia on the "B" columns was removed with the strong SO_2-water solution.

This process was operated in a laboratory pilot plant and is covered by patent. It was found that the lignosulfonic acid waste stream used to remove the calcium and other divalent cations from the "A" beds did not remove them to the degree required. This caused a gradual build-up, lowered the capacity for further absorption, and caused leakage of the divalents onto the "B" beds, thereby lowering their capacity. With lower capacity, smaller volumes of spent liquor could be treated, less lignosulfonic acid waste liquor became available for regenerating the "A" beds, and loading of the entire system with divalent cations progressed more rapidly.

This system could be made to work if the resin were given a periodic complete regeneration with a strong acid such as hydrochloric. However, this would have been expensive in a commercial size installation and would have introduced the undesirable chloride anion into the system.

The next system devised, shown in simplified form on the flow sheet, was similar to that described above and also based on the use of two series of columns containing strongly acidic ion exchange resins. In this system the calcium and other divalents are absorbed on "A" beds and the ammonia on the "B" beds.

In this second method, however, the divalents are removed from the "A" beds with a highly concentrated ammonium bisulfite solution of high pH

to prevent precipitation of insolubles in the bed. This bisulfite solution passing through the resin loaded with the calcium, magnesium, iron and manganese displaces them with the monovalent ammonia from the regenerating solution by mass action.

In this process the resin is converted to the ammonia rather than the hydrogen form. The divalents containing solution is then stripped of free SO_2 and the soluble bisulfites converted to insoluble sulfites which are filtered from the solution. This solution is re-fortified with SO_2, which may include the SO_2 just stripped, plus ammonia to replace that left on the resin. The re-fortified ammonium bisulfite solution is then ready to regenerate another "A" column.

In the succeeding loading cycle, the ammonia left on the resin, now in the ammonia form, is displaced by the divalents in the incoming spent liquor and travels wth the existing liquor to the loading "B" column resin. There it is picked up, along with ammonia from the spent cooking liquor, and displaces the hydrogen from the resin which had been in the hydrogen form.

In this process no chemicals are employed which do not go directly into the cooking operation. The stripped SO_2 from the bisulfite regenerant is returned to the system. The ammonia loaded on the resin in the "A" bed regeneration actually forms part of the makeup base required to take the place of that lost at the blow pits and not recovered from the spent liquor.

The ammonia on the "B" beds is removed from the resin with the 13-14%, 6°C SO_2 solution. In pilot plant operations, the excess SO_2, over that required in the raw acid, is stripped off. This SO_2 in full plant operations would be combined with the burner gas SO_2 to produce the required strong acid used in subsequent cycles.

This process was studied thoroughly and piloted in the laboratories of the Ontario Research Foundation at Toronto. It was subsequently piloted in the laboratories of the Fraser Cos. Ltd., Atholville, N. B. Canada. It is covered in a Canadian patent[3] assigned to the J. F. Pritchard Co., Kansas City, Mo.

Two papers describing the process and giving the technical details and data developed in the laboratory and pilot plant studies were presented before the summer conference on Chemical Pulping and Bleaching, Technical Section, Canadian Pulp and Paper Association, Saranac Lake, New York on June 8, 1961.[4, 5]

The laboratory studies showed that recoveries of ammonia ranged from 68.5% to 82.7% of the ammonia in the spent liquor treated. In addition, chemical tests showed potassium and sodium recoveries in the raw acid produced equivalent to as much as 2% additional ammonia.

The 68.5% recovery figure was secured from runs made under what would be considered the worst operating conditions from a recovery standpoint. This was due to the limited SO_2-water solution volume which could be used with wet wood and direct steaming of the digester. This condition would introduce a large volume of water and thereby reduce the amount of the solution which could be used for eluting.

The 82.7% recovery figure was obtained with the greater SO_2-water solution volumes which could be employed for elution when pulping dry wood with indirect steaming. This factor is very important as the cooking liquor volume produced must equal that of the raw acid required for the pulping operation.

The pilot plant studies at the Fraser Cos. Ltd. verified the laboratory results obtained at the Ontario Research Foundation. In these continuous pilot plant operations the recoveries were approximately the same as those previously obtained. The tests were run to simulate actual plant operating conditions in conjunction with pilot plant digester cooks. The cooking liquor produced was used to pulp chips and the resulting spent liquor was reprocessed for ammonia recovery and re-used as cooking liquor. The pulp produced showed yield and quality comparable to that obtained with liquor made up with new chemicals.

Observations, as reported[4, 5] showed resin losses as expected but these appeared to be nominal. 2500 laboratory cycles of loading and regeneration showed a very small loss in resin capacity which was largely recovered by treatment with a mildly oxidizing solution.

General considerations are that the efficiency of base recovery depends greatly on the availability of strong cold SO_2-water solutions for removing ammonia or sodium from the resin. In the average plant this requires changes in the operation of the acid towers. With the recovery process, SO_2 from the burner gas must be absorbed in water without ammonia to combine chemically with and tie up the SO_2. Therefore, the burner gas SO_2 must be absorbed in water, stripped, combined with SO_2 stripped from the SO_2 eluting solution, re-absorbed in water and cooled for the next elution and regeneration cycle. A suitable high SO_2 content solution production system has been worked out by the J. F. Pritchard Co. engineers. It is not an integral part of the recovery system covered in the patent[3] or the descriptive papers[4, 5] and is not shown in the flow sheet.

The ion exchange process described in the patent[3] and papers[4,5] has been thoroughly tested in the laboratory and pilot plant. It has been proven that the system will not load up with divalent cations and lose efficiency or capacity. The strongly acidic resins used do not break down physically to an excessive extent, nor does the resin lose any appreciable capacity. The pulp quality and yield produced with recovered cooking acid is comparable to that prepared with new chemicals.

Most of the laboratory and pilot plant studies were made using mill produced ammonia base spent liquor. However, sufficient tests were run on sodium base spent liquor to assure that the process is applicable and efficient when applied to recovery of that base.

Based on engineering studies, an ion exchange recovery plant can be built and operated which will give a reasonably short pay out time and an attractive return on investment.

There are certain improvements possible in ion exchange recovery of soluble bases from spent sulfite liquor. These improvements are being studied for incorporation into a system capable of greater recovery efficiency and process simplicity. ■

Literature & Patents Cited

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[2] Swenson, L. K., Method of removing monovalent base ions from sulfite pulping liquors. U.S. Patent #2,916,355 Issued Dec. 8, 1959.

[3] Hopper, E. W., Effer, W. R., and Marshall, H. B., Ion exchange process for recovery of monovalent ions from waste sulfite pulping liquor. Canadian Patent #618,158. Issued April 11, 1961.

[4] Effer, W. R., Hopper, E. W., Marshall, H. B. The recovery of ammonia from ammonium base spent sulfite liquor by ion exchange. Summer Conference CPPA, Saranac, N.Y. June 8, 1961.

[5] Kerr, W. D. Ammonia recovery by ion exchange. Pilot plant studies on the Pritchard-O.R.F. Process. Summer Conference, June 8, 1961—CPPA, Saranac, N.Y.

St. Regis technical men move to Clarkstown

DEFERIET, N.Y.—Technical division personnel at Carthage and Yonkers, N.Y., East Providence, R.I., New York City and here have started to move to the new $3-million St. Regis technical center at Clarkstown, N.Y. By early spring, a staff of 180 will have completed the move.

Key personnel who have already moved with their staffs include Maurice Asselin, Ronald Bailey, Gordon Benson, Gloria Bernier, Willard Carlson, John Cramsie, Richard Dando, Edward Hoffman, Otto Kallmes, Ralph H. Kenan, John Lantz, Charles Mayhood, Yas Nomiyama, Walter Perry, Charles Peterson, Charlotte J. Smith, Roy Swenson, Richard Wiberg and Jack Wilber.

Research and development at St. Regis are supervised by Dr. Kenneth Arnold. Donald Ferguson, who also was among the first to move to the new center, is director of technical services. Gordon Inskeep is technical planning director.

The coating development section will remain in Carthage until sometime in November and the pulping research and development group will stay at Deferiet until January.

Thomas Hewson, assistant vice president of technology, said that the company's other research facilities will filter information and findings through the Clarkstown headquarters. St. Regis operates bag and kraft laboratories at Pensacola, Fla., and a box laboratory at Pittsburgh, Pa. ■

Fibre Box Assn. elects officers

NEW YORK—Lloyd Merwin, vice president of Crown Zellerbach Corp. and general manager of Gaylord Container division, St. Louis, was elected president of the Fibre Box Assn. at its 22nd annual meeting held recently in New York City.

Elected to the post of vice president was Edwin D. Dodd, vice president of Owens-Illinois Glass Co. and general manager of its forest products division, Toledo, Ohio.

William J. Cassady Jr., vice president and general manager of the Mead Corp.'s container division, Cincinnati, Ohio, was re-elected vice president of the association.

Mr. Merwin joined the Gaylord division in 1935. In 1937, he became general manager of the Houston plant, and in 1940, the Dallas plant was put under his supervision. He was made vice president of the Texas division in 1951.

MERWIN DODD CASSADY

Joining O-I in 1946, Mr. Dodd became director of public relations in 1949, Libby Glass division production manager in 1954, and Libby factories manager in 1956. Two years later, he joined the forest products group and was appointed to his current post earlier this year.

Mr. Cassady joined the Jackson Box Co. in 1931 and was made vice president and general manager of that company in 1940. In 1942, he became president, retaining that post until Jackson was purchased by Mead. Mr. Cassady moved to his present office in 1957. ■

Hollingsworth heads Hollingsworth & Vose

EAST WALPOLE, MASS.—Aubrey K. Nicholson, president of Hollingsworth & Vose since 1945, had announced his retirement earlier this year to be effective October 15, but in the newly created post of chairman he will serve as consultant to the company on a part-time basis.

Mark Hollingsworth, whose father and grandfather were presidents of H&V, has been elected president and chief executive officer. He graduated from Harvard in 1942 and has served in various capacities in sales and production. He was elected a vice president in 1953 and executive vice president in March of this year.

Hollingsworth & Vose has a million dollar expansion program underway at its West Groton mill and at its subsidiary, The American Wood Board Co. The program will substantially increase production of three of the company's nine paper machines and will provide greater versatility for its fast-growing non-woven "Hovotex," made on a paper machine. ■

P&P editor addresses Coast groups

SEATTLE—Albert W. Wilson, editor of PULP & PAPER, addressed three groups on a recent Pacific Coast swing—two meetings in Seattle and one in Portland, Ore. He discussed many personal experiences and observations in Russia, Poland, Britain, France, Germany, Scandinavian and other countries during two extended trips abroad

in the past two years.

Ron Richardson, resident manager for Crown Zellerbach Corp. in Seattle, arranged for a well-attended luncheon meeting of industry, publishing and education leaders in Seattle. Present were Mr. Henry Schmitz, former president and now trustee of the University of Washington, and other top faculty members from the University, leading officials and writers of newspapers and economists for several prominent Northwest industries. The luncheon was in Seattle's Washington Athletic Club.

Similar intimate talks were made by PULP & PAPER's editor to an evening meeting in Seattle and a luncheon in Portland, attended by members of the International Brotherhood of Migratory Peddlers in both cities. This is an association of equipment and supply company representatives on the Pacific Coast who serve the pulp and paper industries. Several mill executives are honorary members. Both meetings were well attended. ■

STRICTLY PERSONAL . . .

Midwest

Ted Gilbert Dies—A Leader Who Contributed Much to Industry

Theodore M. Gilbert, president of Gilbert Paper Co., Menasha, Wis., died suddenly at his summer home, Waupaca, Wis., Sept. 17, at the age of 61. He had been a quiet but helpful leader in association work and in industry councils for many years and leaves behind a host of good friends.

Mr. Gilbert joined Gilbert Paper Co. in 1923. He was grandson of William Gilbert, the founder. Ted Gilbert served as secretary, later as a director and treasurer, becoming vice president in 1947. In 1954 he was made president.

In the paper industry, Mr. Gilbert was a director and vice president of the Association of Pulp Consumers and an executive committeeman of the Writing Paper Manufacturers Assn. He had many close friends in the industry from coast to coast. Many association leaders would come to him for advice and his counsel was respected as sound and farsighted.

Robert L. Wilson, formerly senior buyer, has been promoted to purchasing agent, Grand Rapids area, of Packaging Corp. of America, responsible for a three-city purchasing operation which includes the company's Grand Rapids office, research and development dept., a paperboard mill, folding carton plant, corrugated container plant and truck line in Grand Rapids and a container plant in Kalamazoo . . . **Edwin B. Stephen,** formerly material control supervisor, has been assigned to the Grand Rapids purchasing dept. of PCA as commodity buyer.

Gordon Gray has been named a member of the board of directors of Champion Papers Inc. He is chairman of the board, Piedmont Publishing Co. and a director of R. J. Reynolds Tobacco Co.

South

A. D. Fentzke has been named product manager, technical sales, The Babcock & Wilcox Co's. refractories division with headquarters in Augusta, Ga.

The Southern Exposure: **Edward R. Mappus,** operating engineer of No. 3 machine at West Virginia Pulp and Paper Co's. Charleston, S.C. mill, has been promoted to supervisor of that machine, with complete responsibility for its operation. He joined West Virginia in 1955 as staff assistant in maintenance.

Richard J. Diaz is now paper mill supt., West Virginia Pulp and Paper Co's. Charleston, S.C. mill. He will be responsible for all three paper machines.

East

The new Patrician Paper Co., Inc. at South Glens Falls, N.Y., which has recently gone into operation, is headed by **Edward B. Mallory,** president, and **William H. Holl,** vice president in charge of manufacturing. Key personnel are: **Thomas Zayatz** is supt. **John Verratti** is finishing room supt. **John Seabury** is asst. finishing room supt. **J. Losaw** is master mechanic; **George Finger** is office manager. **John Soderholm** is chief electrician and **Donald Huminston** is chief pipe fitter.

George F. Schuning is now general sales mgr., J. O. Ross Engineering Div., Midland-Ross Corp. with responsibility for Ross' eight sales offices in the U.S. He headquarters in New York.

David F. Lawlor, who represented Asten-Hill for many years in New England died recently after a long illness.

Dr. Bengt G. Ranby, professor of pulp and paper technology and director of Empire State Paper Research Institute (ESPRI) at the State University College of Forestry at Syracuse U. has been singled out for worldwide recognition. The King of Sweden, Gustaf Adolf VI, upon recommendation of the board of trustees of The Royal Institute of Technology, Stockholm, has appointed Dr. Bengt to two newly created posts: professor of polymer technology, and chairman of the department of polymer technology at The Royal Institute of Technology.

Dr. Robert T. Hart has been appointed director of commercial development, Oxford Paper Co. He will explore new fields of endeavor in accordance with Oxford's policy of growth and diversification. Prior to founding the Gorham Laboratories in 1956, Dr. Hart was asst. director of research, S.D. Warren Co.

Canada

A. E. Balloch, formerly assistant mgr. and director, Bowaters Newfoundland Pulp & Paper Mills, takes over next January as gen. mgr. at Bowaters Mersey Paper Co., Liverpool, N.S. **H. K. Joyce,** now assistant gen. mgr., Bowaters Mersey Paper Co. will go to Corner Brook, Nfd., as assistant gen. mgr., Bowaters Newfoundland. Mr. Balloch, Oxford graduate, joined the Bowater organization in 1938. After a distinguished military career during World War II he returned to Newfoundland as assistant to the mgr., later serving four years at Bowaters Ellesmere Port, Cheshire, England. He became assistant gen. mgr. at Corner Brook in 1956. Mr. Joyce, Toronto-born, served with the Canadian navy during the war, is a former chairman of the industrial section, CPPA.

Newsom

Langstaff

P. J. (Jim) Newsom is now manager, technical services, Formex Co. of Canada, Division of Kenwood Mills Ltd. **J. H. (Howard) Langstaff** becomes manager, sales. Mr. Newsom will supervise technical service engineering force and is located at the company's new plant in Kentville, N.S. Mr. Langstaff is located at the sales office in Montreal.

Andrew J. Bobkowicz has been named recipient of the 1961-62 D. S. and R. H. Gottesman Foundation Scholarship at the Pulp and Paper Research Institute of Canada and McGill U. for the third successive year. Under supervision of **Dr. W. H. Gauvin** of the Institute's chemical engineering dept., he is investigating the turbulent flow characteristics of model fiber suspensions.

New supt. of mill services at St. Lawrence Paper Corp., is **John J. Dupuis,** formerly with Consolidated Paper Corp.

Pacific

James C. Adam now is design engineer, Sandwell International Corp., Portland, Ore. He was with Beloit Iron Works. . . **William C. Bean,** formerly with Marathon Corp., now is technical director, Columbia River Paper Co., Vancouver, Wash.

Pacific Coast Safety Award . . .

West Coast mill safety record during 1960 is recognized in a National Safety Council Assn. Award presented recently in Portland to members of the Pacific Coast pulp and paper industry. Accepting the award are (left to right): **Ivor D. Isaacson,** vice president, International Brotherhood of Pulp, Sulphite and Paper Mill Workers; **S. J. Robinson,** president, Publishers Paper Co., and Pacific Coast Assn. of Pulp and Paper Manufacturers; **S. W. Grimes,** managing director, Manufacturers Assn.; **Hugh McCahey,** program director, National Safety Council associations; **Oscar Robertson,** acting regional director, United Papermakers and Paperworkers; **Al E. Brown,** general vice president, UPandP; and **Oren Parker,** vice president, IBPS and PMW.

Robert W. Stoebig, resident forester, Columbia River Paper Co.'s coastal tree farm, Taft, Ore., has been promoted to chief forester.

Oliver H. Stieber, formerly general traffic manager for Crown Zellerbach Corp.'s Gaylord Container division in St. Louis, Mo., has been named asst. general traffic manager in San Francisco . . . Also moving from St. Louis is **J. Percy Thompson,** former asst. traffic manager for the division. He will be asst. traffic manager for CZ.

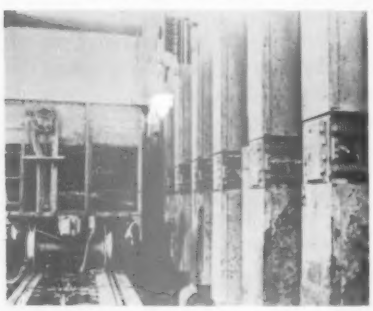
R. L. Post has been named paper mill representative for Penick & Ford, Corn Refining Div., servicing paper mills, bag plants and corrugating plants in the Pacific Northwest. He was previously employed by Kalamazoo Paper Co. and the Columbia River Paper Mills. He has a b.s. in paper technology from Western Michigan U.

NEW EQUIPMENT . . .

Spray lubricants
. . . for fork lifts

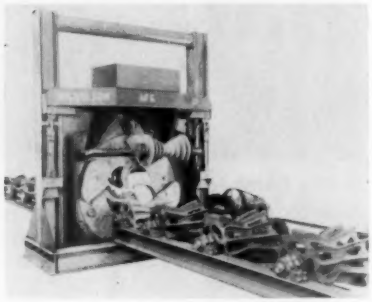
Applications: For lubricating moving parts of fork-lift trucks
Advantages: Four lubricants designed for fork lift upright, chain and cable, battery preservative and penetrating oil applications are available in spray-can form. The company says there is no dripping or waste with the fast lubrication method. Hard-to-reach places up to 5 ft. away can be reached with the spray. Upright lubricant contains molybdenum disulfite which will not attract dirt or wipe off easily. Chain and cable lubricant contains graphite particles suspended in a solvent; its controlled viscosity prevents lubricant from dripping on slow speed or idle chains.
Supplier: **Clark Equipment Co., 7300 S. Cicero Ave., Chicago 29, Ill.**

Air vibrators
. . . lessen unloading time



Applications: For unloading railroad cars
Advantages: Unloading time is cut 20%, the company says, with this installation which uses six air vibrators. Installed on a free-floating spring arrangement, the unit gives complete vibration freedom. The company says that the unusual mounting and long-stroke action of the vibrators eliminates the conventional "car-return" to half-position for manual clean-out.
Supplier: **National Air Vibrator Co., 435 Literary Rd., Cleveland 15, Ohio.**

Log debarker
. . . is economy size



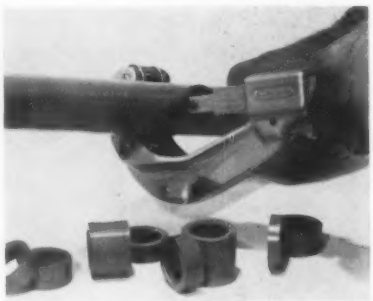
Application: For debarking logs.
Features: Accumat Roto-Barker is available at about one-half cost of the higher speed Roto-Barker. Model C comes in 32, 43, 52 and 60 in. sizes, and features low initial cost, easy installation and low maintenance, says the manufacturer.
Specifications: Unit is contained in a welded structural steel frame. It is warranted to debark logs sufficiently clean for any pulp process with minimum fiber loss, says the maker.
Supplier: **Nicholson Mfg. Co., 2525 A. St., S.E., Auburn, Wash.**

Angling blade, push plate
. . . are new Cat attachments

Applications: Angling blade can be turned 25° in either direction from the vertical; push-plate can be a counterweight or can be used to push small equipment.
Advantages: The angling blade, with replaceable end bits and cutting edge, is attached to original pins after removing bucket. Automatic built in tilt is advantageous in ditching, stumping, etc. High lift and far reach give good land clearing performance, the company says. Arm-mounted lift blade gives high maneuverability because there are no outside push arms, the company further states.

The push plate serves as a counterweight when the Cat is loading. When plowing or dozing snow with heavier and bigger attachments, the push-plate gives additional traction. The attachment is useful for pushing small scrapers or other small equipment.
Supplier: **Balderson Inc., Wamego, Kan.**

Cutting wheel
. . . for plastic pipe



Application: For cutting plastic pipe.
Features: Specially designed cutting wheel for use in the Ridgid No. 205 tubing cutter converts it into a plastic pipe cutter in seconds. Recommended for either thin or heavy wall rigid plastic pipe, cutter has a capacity of up to 2 in. schedule 120 plastic pipe (¼ in. wall thickness). Wheel is designed to fill specific need when working with plastic pipe by eliminating both internal and external burrs by a specially designed radius.

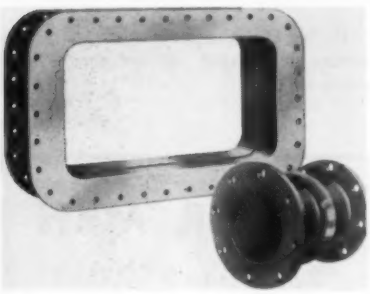
Absence of external burr insures uniform distribution of solvent on inner surface of fitting when making a joint. Presence of such a burr will scrape this solvent off the inner surface of the fitting, greatly lessening the chances of making a pressure-tight joint.
Supplier: **The Ridge Tool Co., Elyria, Ohio.**

Water clarifier
. . . speeds purification

Application: Where drinking water is made from river water
Advantages: The company says its water purification system converts muddy river water into drinking water at less than half the installation and operating costs of conventional sand filtration systems, common purifiers

for the past 65 years. In place of large and slow settling basins of the conventional method, the new system uses a filter bed which removes dirt particles that have been formed into a precipitate. The first installation was made at a municipal water treatment plant at Eugene, Ore.
Supplier: **Microfloc Corp., Sylvan Bldg., Portland, Ore.**

Rubber expansion joints
. . . designed for tough wear



Applications: For flexibility in pipe connections.
Features: Made from a specially developed high grade abrasion-resistant rubber, these expansion joints have been compounded for maximum flexibility and non-set characteristics. Joints are reinforced with heavy-weight duck to give extra toughness and service and are coated on the outside with neoprene to prevent oxidation or damage from oil or grease.

Joints are also available with internal neoprene lining or are made from neoprene throughout. Joints are designed with rubber flanges as an integral part of the body. One-piece construction provides easy installation and assures a tight seal without gaskets due to resiliency of the rubber.
Specifications: Standard spool type joints are available for pipe sizes from 2 to 72 in. Vacuum joints are designed from 30 in. of mercury and pressure joints for 0 to 150 psi, depending upon size. Special joints can be designed in tapered, rectangle, oval or other shapes and for acids, gases and chemicals.
Supplier: **Crane Packing Co., Dept. PR-6, 6400 W. Oakton St., Morton Grove, Ill.**

Defoaming system
. . . uses sonic energy

Applications: Breaks down pulp foam with sonic impulses.
Advantages: The company says its system, installed "in-line" and operated by compressed air, steam or other gases, uses no chemicals, foam settling tanks, electronics, or moving parts. Foam entering a new resonant chamber is destroyed continuously by sonic energy.
Supplier: **Teknika, Inc., 634 Asylum Ave., Hartford 5, Conn.**

Emerson Mfg. Co. Makes the Dualator

PULP & PAPER readers who saw the special report on the Dualator in the Oct. 2 issue (page 79), may be interested in obtaining further information. Throughout the article, there is no mention of the manufacturer's name. We hasten to amend this.
Supplier: **The Emerson Mfg. Co., Lawrence, Mass.**

SUPPLIERS

New American SF representative
has been named for paper mills in Ohio, West Virginia, Western Pennsylvania and Northern Maryland. Hinken and Co., Inc., Pittsburgh, Pa., under presidency of William Hinkle Jr. will represent American SF Products, Inc. for its air handling equipment.

Vinyl acetate monomer plant
will be built by National Starch and Chemical Corp. at Seadrift, Tex. Capacity will be 45 million lbs./year.

Borden Chemical Co.
and the North American Coal Corp. have signed an agreement naming Borden as exclusive sales agent for the coal company's alum products to the U.S. paper industry. North American will produce its alum at a new $2 million plant in Powhatan Point, Ohio, slated for start-up late this year.

Foxboro is expanding
its Montreal plant. Plans for a $600,000 addition have been announced by The Foxboro Co., Ltd., increasing capacity of the two story-structure to 110,000 sq. ft.

West Coast representation
for The Noble & Wood Machine Co. has been arranged with Monarch Supply Co., division of Monarch Forge & Machine Works, Inc. They will cover states of California, Idaho, Oregon and Washington for Noble & Wood.

Sierra Talc Co.
has set up is own sales offices in Newark, N.J., Boston, Mass., Chicago, Ill. and Cleveland, Ohio. The Newark office is headquarters for the new eastern division and **Maurice F. Warner** is eastern division manager in charge of sales to the pulp and paper industry.

Suppliers

P. A. Peterson

C. J. Peterson

Philip A. Peterson has been appointed sales manager, special products, Rice Barton Corp. He has been a key sales figure in Rice Barton since joining in 1951 and was recently named chief engineering i/c trailing blader coaters. He will continue to be responsible for coating machinery as well as flash-drying plants. **Carl J. Peterson,** who has been specializing in flash drying plant sales, is now assistant sales manager.

Edward J. Kuhn has joined The Black-Clawson Co. as sales engineer in its air systems division, Hamilton, O. He was previously with Westinghouse Electric Corp.

Phillip J. Liston has been named sales manager of Fibercast Co., division of Youngstown Sheet and Tube Co. He had been assistant sales manager . . . **Elvin R. Danielson** is now assistant manager of Allis-Chalmers processing machinery dept. . . . **L. J. Geiger** has been appointed manager of marketing for General Electric Co's. process computer section, Phoenix, Ariz.

Richard E. McCoach is now manager of industrial sales, American Hoist & Derrick Co. He had been general sales manager of Brownhoist Corp. . . . **Paul A. Fodor, Jr.** has been named director of sales for the chemical division of Pittsburgh Plate Glass Co.

R. D. Quick is now manager sales-service-engineering for Stanford Engineering Co.

Classified Advertising

PROJECT ENGINEER

Multi-plant pulp and paper company has opening for Project Engineer offering excellent opportunity in large modern plant located in Alabama. Operations include pulp mill, paper mill, board mill and converting. We are seeking a graduate Mechancial Engineer experienced in this field who has potential to move up within our company. Please send resume of experience, education and salary requirements. Information will be held in confidence, and should be forwarded to:

Industrial Relations
Marathon Southern Corporation
A Division of
American Can Company
P. O. Box 315
Butler, Alabama

PAPER CHEMIST

West Coast fine grade paper company has an opening for an experienced chemist to work in their Technical Department.

Fine grade paper background preferred but not essential. Salary comensurate to experience.

Mill located in a city which offers good housing, schools, and recreation. A 50 minute drive takes you to a metropolitan city.

In answering please give full resume along with references. Box P-406, PULP & PAPER, 370 Lexington Avenue, New York 17, N. Y.

WANTED

Rotary Kilns & Dryers, all sizes, etc. We pay cash. Send us complete specifications on your idle equipment. PERRY EQUIPMENT CORP., 1403 N. 6th St., Phila. 22, Pa.

SALES ENGINEER

APPLETON MACHINE COMPANY . . . long an outstanding builder of Supercalenders, is seeking a SALES ENGINEER with experience in paper mill finishing room, or its machinery. Must be FREE TO TRAVEL extensively while located at home office in the Fox River Valley—heart of the Paper Industry. SEND RESUME TO VICE PRESIDENT, SALES—APPLETON MACHINE COMPANY, BOX 468, APPLETON, WISCONSIN.

ELECTRICAL ENGINEER

West Coast fine grade paper company has an opening for a graduate electrical engineer preferrably with Pulp & Paper background. The individual selected will be expected to assume complete responsibility for all electrical maintenance and planning for a pulp and paper mill.

Salary open

Mill located in a city which offers excellent living conditions including good schools, housing and recreational facilities. Close to a large metropolitan city yet far enough to not be affected with big city problems.

Please send complete resume and references in first letter. Box P-405, PULP & PAPER, 370 Lexington Avenue, New York 17, N. Y.

ROLL GRINDER
NEEDED IMMEDIATELY

for new, modern 2-machine pulp and paper mill. Hourly rate 3.065; all normal fringe benefits. Applicants must be experienced roll grinders. All replies confidential. Send complete resume to: Box P-409, Pulp & Paper, 370 Lexington Avenue, New York 17, New York.

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Opportunities for graduate Chemical Engineers with experience in the pulp and paper industry. Locations in progressive communities in coastal areas of Georgia and Florida. All replies will be treated in confidence. Submit resume and salary requirements to Manager Industrial Relations, Rayonier Incorporated, P. O. Box 240, Jesup, Georgia.

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The last word

An Industry Pioneer Passes On

When pulp and paper history is written, the name of George Wilson Mead will surely rank high in annals as one of the industry's great pioneers.

He had the courage and the vision to make decisions which quite a few other men of prominence in this industry—for one reason or another (probably all good reasons *at the time*)—were not ready to make.

The late Peter Massey called upon Mr. Mead a quarter of a century ago. He sat in Mr. Mead's office and said: "You see that ground out there? We can make paper out of that." Of course, this was *the* interview which introduced Georgia and American clays into paper (literally saving forests of fiber).

Of course, there was a lot more to it than this. *Life* magazine was just being launched. A new era in publishing was opening up. The "slick paper" magazine era was dawning. Paper had to be coated much faster than ever before. On-machine coating was the new technique.

Pete Massey and his process had been turned down flat in several paper mill top management offices. The man who sensed the potentials and had faith in Pete Massey was George Wilson Mead.

It was his nature to accept Pete Massey. He had similarly sensed the great potentials of water power on the Wisconsin River. He helped in many important ways in his lifetime to make the Wisconsin one of the *hardest working* rivers in America, with water power which paid its taxes like any other business and was not a political racket as some power developments have been—unfortunately for the taxpayers who have to make up the debts, like the Chinese, once a year.

Mr. Mead's name should, and will, always be associated with the Wisconsin River and its industrial development. He had the courage to break away from newsprint—one of the first—at a time when action was needed in this field.

His company, Consolidated Water Power & Paper Co., all through his life, was ready for new things—ready to try out a new process, ready to do anything for paper progress. It licensed the Massey process to a number of great paper firms in foreign countries.

Mr. Mead told the writer about 15 years ago that he had thought seriously of building a mill on the West Coast. But, he said, "now it is too late." Maybe for the West Coast, but he figured greatly in making Wisconsin this country's No. 1 papermaking state and people who worked for him liked him.

He and another George Mead, creator of the Mead Corp., used to joke about their possible very remote cousinship. This amused them and neither took the question seriously. They liked each other. They were both "paper pioneers." **A.W.W.**

"Panic Button" for Pollution

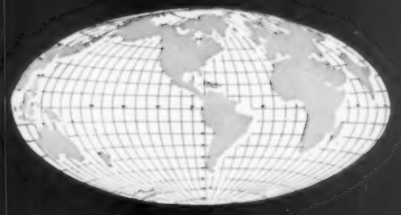
The "panic button" was pressed by Columbia Broadcasting Company on Oct. 19 with its air "colossal" entitled "The Water Famine," promoted as revealing how this earth is "dying of thirst."

Of course, nothing is more ridiculous than this statement. Articles in PULP & PAPER have told the facts and there are more articles to come (see page 9 this issue for report from Engineering Conference).

In Washington at the Engineering Conference, two P&P editors were introduced by a prominent engineer to a producer helping prepare the CBS show. It was suggested the editors might be helpful. The offer was turned down.

CBS singled out pulp and paper to give it a scolding from among all the many polluting industries (oil, metal, cheese, farm, farm products, etc.).

It seems unfortunate that the broadcasting companies feel a necessity to go the press or politicians just "one better" in sensationalizing important national issues.



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